

Full Throttle



February/March 1998 Volume 5 Number 1
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Featured Review

Sierra Pro Pilot

Optimizing FS 98

Cross Country

REVIEWS

- Dynamic Scenery Maker
- 747 Jumbo Jet
- Tahiti Scenery
- Moving Map Instrument
- California Adventure Collection
- Geneva Scenery

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Corner**

**Best Add-Ons
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Look here ace, you've got just 90 feet of runway before you earn your wings the hard way. Face it. Your fixed-wing rules do not apply here. What you need is a helicopter.



And now you've got one in Microsoft Flight Simulator 98, an upgrade guaranteed to blow



all past flying experiences out of the sky. With it you'll soar over vastly improved landscapes that include 3000 airports (10 times more than the

previous version) and more than 45 cities around the world.

Flight Simulator 98 features multiplayer, force feedback support and flight models validated by Cessna® and Learjet,



so you can achieve all new levels of flight realism. Take control of the widest range of aircraft, including this Bell 206B JetRanger III helicopter, a machine that's guaranteed to make you feel like a rookie all over again.



Your coordinates for take-off are www.microsoft.com/games/fsim

Dear Flight Simulator Enthusiast,

In December of 1997 we acquired **Full Throttle** magazine from Ziff-Davis, who decided that it could best serve its subscribers by finding a publisher who was intimately familiar with flight simulation. What do we know about magazine publishing? To be honest, not a lot. However we do have a considerable amount of experience with computers, general publishing, customer support and most importantly flight simulation.

I've been involved in the computer industry since 1972. I've worked with all sorts of hardware — from the classic IBM mainframes to today's slick palmtops; and all sorts of software — from IBM 360 assembly language and COBOL to the newest rapid application development tools, such as Delphi.

In 1978 we started Abacus which has published 400+ books and software packages. More recently, Abacus has published five quality flight simulation add-ons. Along the way, we've met hundreds of simmers — many with unique talents and skills. We've built a solid, well-known company that has stood the test of time. In fact, 1998 marks the 20th anniversary of Abacus. These are the credentials that led us to form a new corporation to take over **Full Throttle** magazine.

What makes an aging industry veteran like myself want to get involved in magazine publishing? Actually, it's not the publishing that

interests me — it's the topic. I'm a big fan of flight simulation. What makes me turn to flight simulation? Most likely many of the same reasons that readers subscribe to **Full Throttle**:

- ➔ Flying requires a lot of time and concentration. With flight simulation I can squeeze in extra hours.
- ➔ Renting a plane is expensive. Flight simulation eliminates most of these costs.
- ➔ Poor weather keeps real pilots grounded. Flight simulation keeps me flying in any kind of weather.
- ➔ A pilot's license doesn't automatically qualify me to fly advanced aircraft. Flight simulation lets me check-ride any type of plane.
- ➔ Most of us can't afford to fly to exotic destinations. Flight simulation takes me anywhere in the world— real or imaginary.
- ➔ Most of the airports in the real world are already built. Flight simulation lets me redesign existing airports or create totally new ones.
- ➔ Aircraft are designed by aeronautical engineers. Flight simulation has the tools to design my own.
- ➔ Not everyone can stand the stress of an air traffic controller. Flight simulation tests my skills without the negative consequences.

Microsoft has sold a million+ copies of **Microsoft Flight Simulator 98**. Obviously there's a tremendous audience of users who also enjoy flying. With such a large audience, we're counting on the most vocal among you to steer us to your particular interests.

As publisher, my job is to deliver informative and entertaining articles, techniques, tips and tools that keep your interest in flying. Our crew has the "know-how" and the enthusiasm to share with you. We have a direction in which we're steering **Full Throttle**. But we're mature enough to know that it's really our readers who call the shots. To do the best possible job, we need to hear from you. What kind of magazine do you want from **Full Throttle**? Please let me know by mail or e-mail: arnie@ftmagazine.com.

To run the magazine, we've roped Tim Dickens as Managing Editor. Tim is a well-known simmer and friend to hundreds of enthusiasts throughout the world. He's a professional scenery designer, an excellent writer and has a lot of business savvy to boot. I'm confident that Tim will deliver an excellent **Full Throttle** magazine. I'm sure that Tim would like to hear from you. Contact Tim at tim@ftmagazine.com.

Happy Flying,

Arnie Lee
Publisher





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1998



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Phone Toll Free 800-821-1707
Customer Service 616-554-7275
Fax 616-554-7279

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Submissions:
You may address tips, special requests and other correspondence to:

The Editor
Full Throttle
5376 52nd Street SE
Grand Rapids, MI 49512 U.S.A.
Or contact us by email at:
editor@ftmagazine.com

For subscriptions, fulfillment, questions and requests for group subscriptions, address your letters to:

Customer Relations
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Pilot's Note: This information is not intended for use in actual flying situations. While the information is as realistic as possible, you should not use it for actual flying instruction. *Safe flying!*

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Letter From The Editor

As 1998 begins we have not only a New Year, but also a completely new *Full Throttle* magazine. The publication has a completely new look, with an editorial and writing staff to go with it. In this first issue of the New Year, you will find both timely reviews of flight simulation products, as well as some helpful "how to" features that hopefully, will benefit you in the pursuit of this hobby, which has provided hours of enjoyment to all of us. It is our intention to maintain this position at the cutting edge of technology in the world of virtual aviation.

Full Throttle will continue to be a topical and informative window to flight simulation, and the world of real aviation for you, our valued reader. Upcoming issues will be packed with more of the up to date product reviews, along with helpful and informative features relative to scenery, aircraft and panel design, 3-D technology, add-on utilities and much more. **Microsoft Flight Simulator 98**, as well as features and news updates on the variety of new flight simulators, which are now emerging on the market, will be the focus of this journal. These will be combined with real-world aviation features, and profiles of individuals prominent in the world of flight simulation and aviation, to give you a more personal and human perspective.

We would very much like to have your feedback on this, as well as ideas and suggestions for what you would

like to see in *Full Throttle*. Please feel free to contact us through our web site at <http://www.ftmagazine.com> or by mail. As time goes on we will have an extremely interactive web site, as well as a message board in the magazine for you to post messages, requests, etc., to connect you with all of our readers. We invite you to send postings to us, again via our web site or by "snail mail."

I can speak for the entire staff when I tell you that we are enthusiastic about the direction we are headed and our continued relationship with you.

Tim Dickens

Managing Editor



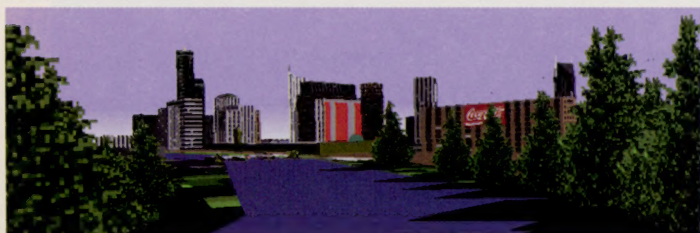
NOTAMs: NewProducts

For those of you who aren't familiar with the term, NOTAMs is an acronym for NOTices to AirMen. The U.S. Government issues NOTAMs on a regular basis. This issue marks the launch of our version of NOTAMS — an expanded new products section. It will be a regular part of our magazine. The products listed are compiled from press releases and information provided to us by the respective authors and companies who supply the products. We've taken steps to verify the information with each author or company, but cannot be responsible for inaccurate features, specification or availability dates.

Scenery from Down Under

The Ozpak, the prolific group of scenery designers based in Australia, have released an upgraded version of their **Victoria Scenery**. This new version also supports MS **Flight Simulator 98**. The large scenery set covers the entire beautiful state of Victoria.

In addition, the Ozpak has scenery of several of the other states: New South Wales, Queensland and Northern Territory, South Australia, Tasmania and Western Australia. Visit their web site.



A View of Downtown Melbourne

Victoria Scenery	
Donationware	1.7MB
Filename:	AVIC9801.zip
For Microsoft FS51, FS95 and FS98	
From:	OZPAK
http://www.ozpak.pcsa.net.au	
e-mail:	dkings@monte.pcsa.net.au

New Flight Planner

Sascha Felix has released **FlightSim Planner 98**. As you might expect, FSPlan 98 lets you plan your flights and includes databases for 10,000 airports. You can plan flights manually or automatically and include fuel consumption calculations.



A flight plan from FlightSim Planner

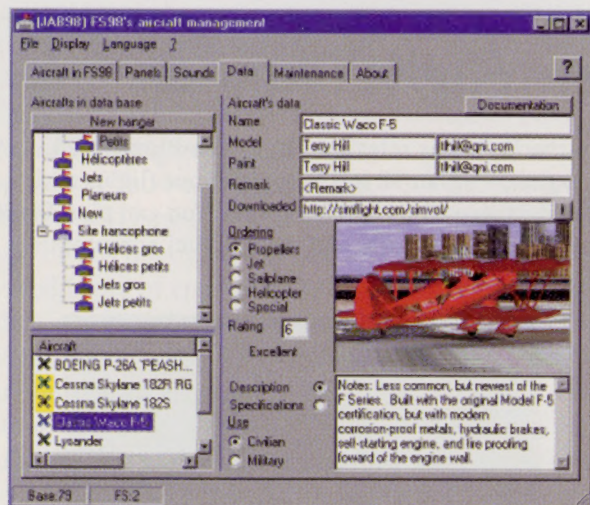
In addition, you can view the scenery including airports, nav aids and runways. The demo version of FSPlan98 is complete except that it restricts you to Europe and U.S. Southwest and precludes loading and saving flight plans.

FlightSim Planner 98	
Shareware:	\$20
For Microsoft FS51, FS95 and FS98	
From:	Sascha Felix
ftp://pike.phil.uni-passau.de/fsim98/fsp98.zip	
e-mail:	felix@phil.uni-passau.de

Organizer for your FS98 Aircraft

With FS98, you can easily add dozens (or even hundreds) of new aircraft. With such extensibility, you may have trouble managing such a large collection of planes.

Jacky Brouze's new **JAB98** helps you maintain some semblance of order. You can hide aircraft from FS98 so that it operates faster. You can also easily rename planes, change instrument panels and change the sounds.

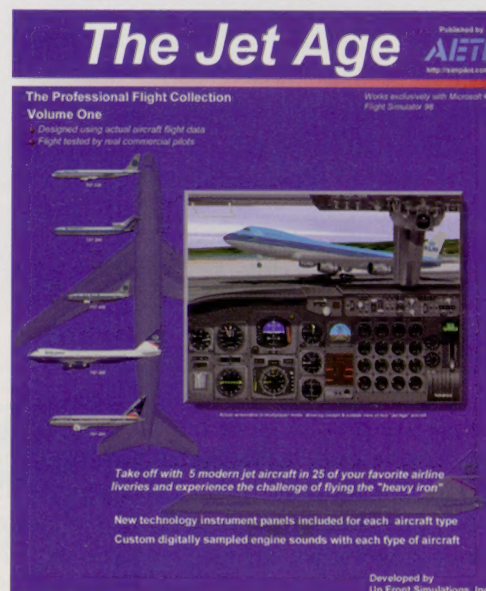


JAB98 lets you preview your aircraft

JAB98	
Freeware	245K
Filename:	JAB98v104.zip
For Microsoft FS98	
From:	Jacky Brouze
http://www.home.ch/~spaw1382/stockprogrammes/	
e-mail:	brouzej@vtx.ch

New Aircraft Collection

AETI's new package **The Jet Age** is a collection of 25 different jetliners for these Boeing Series: 707, 727, 737, 747, 767. Each series has five distinct models.



The Jet Age is a collection of 25 jetliners for several Boeing series and more

In addition, there is a set of new custom instrument panels and individual engine sounds. According to AETI, the flight models were tested by real commercial pilots.

The Jet Age	
SRP	\$39
For Microsoft FS98	
From:	AETI 3972 Barranca Pkwy Suite J-501 Irvine, CA 92606
Phone	714-551-0372
Fax	714-551-2695
Internet	http://www.simpilot.com



747-400

PRECISION SIMULATOR



Live & Simulated Landings

With **Cleared To Land**, Lago offers unique real video footage of actual approaches and landings at major airports such as Brussels, Lugano, New York, Las Vegas and Acapulco. The videos were shot from the cockpit. Lago has licensed the videos from producer Just Planes Video.



Approaching NYC at dusk

Also included with the two CD-ROM set are the scenery for the same areas. After watching live video, you can turn on your flight simulator and try to duplicate the live landings.

Cleared To Land	
SRP	\$45
For Microsoft FS95 and FS98	
From:	Lago SNC PO Box 293 22100 Como, ITALY
Phone	+ 39 31 300174
Fax	+ 39 31 300214
Internet	http://www.lagoonline.com
e-mail	100411.3660@compuserve.com

Clipart for Scenery Designers

Veteran flight sim ace Laemming Wheeler has put together scenery "clip art" for users of **Microsoft Flight Simulator**. Using his new **FSWow!** you can easily add new 3-D objects such as these to your scenery in just minutes.

FSWow! lets you add 3-D objects by just clicking. By changing colors and sizes, there are more than a thousand different combinations of new scenery, including trucks and planes such as these, but also loading docks, control towers, storage tanks, and more.



General Aviation Aircraft



FSWow	
SRP	\$39
For Microsoft FS95 and FS98	
From:	TekMake 15307 Parkville Houston, TX 77068
Phone	281 440-5542
Fax	281 440-5669
Internet	http://www.onramp/~tekmate
e-mail	73030.2446@compuserve.com

Global Nav aids for FS98

While FS98 has many more navigation aids than any previous version of **Flight Simulator**, it's far from complete. For example, here's the FS98 nav aids for South America:



DEFAULT FS98 NAV AIDS

John Cranenburgh has completed a compilation of navigation aids based on data provided by Jeppesen and covering the entire world. With **AllNav**, South America nav aids increases to look like this:



ALLNAV NAV AIDS

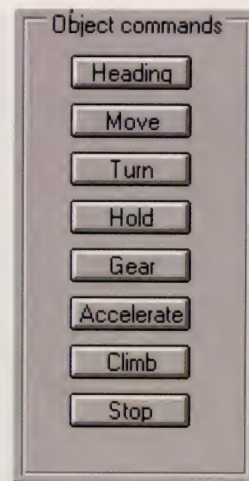
You can download this new set of nav aids from his website.

AirNav	
Freeware	
Filename:	allnav98.zip
For Microsoft FS98	
From:	John Cranenburgh
http://ourworld.compuserve.com/homepages/cranenburgh/allnav.htm	
e-mail:	brouzej@vtx.ch

Dynamic Scenery Utility

Rafael Sanchez is preparing his **Dynamic Object Designer**, a.k.a. DOD, for users who want to create their own dynamic sceneries. With DOD you can create objects and have them move from within your scenery.

As you can see in the control panel, DOD has built-in commands that let you position and move the objects, e.g., Heading, Turn, Move, Hold, Takeoff and Land.



Dynamic Object Designer	
Freeware	
Available:	March, 1998
For Microsoft FS51, FS95 and FS98	
From:	Rafael Sanchez
e-mail:	rafasan@total.net

Two New Packages from Aerosoft

Aerosoft has announced two new FS add-ons for **Microsoft Flight Simulator**. Their **Airline Flights 2** includes more than twenty professional adventures for FS5.1, FS95 and FS98, including a B747 and 767. You'll fly over the continent of Europe and on long hauls to and from Hong Kong, Japan and Australia. The air traffic control is spoken by actual pilots and controllers.



German Airports is a scenery add-on that includes seven highly detailed airports including Munich, Nuremberg and Dresden, Stuttgart and others. Publisher Aerosoft says that the airports are all photorealistic.

Airline Flights 2 and German Airport	
SRP	\$40 (each)
For Microsoft FS5.1 (req. Flight Shop), FS95, FS98	
From:	Aerosoft, GmbH. Airport Paderborn/Lippstadt Lindberghring 12 D-33142 Bueren-Ahden Germany
Phone	+49 29 55 76 03
Fax	+49 29 55 71 18
Internet	http://www.aerosoft.com
e-mail	order@aerosoft.com

Pacific Islands Scenery Set

Austrian developer Pilots has released a new scenery set called **Pacific Islands**. According to Managing Director Stefan Schaefer, the scenery covers the exotic Mariana Islands — Guam, Saipan, Rota and Tinian located in the western Pacific.



Example of the Pacific Island Scenery Set

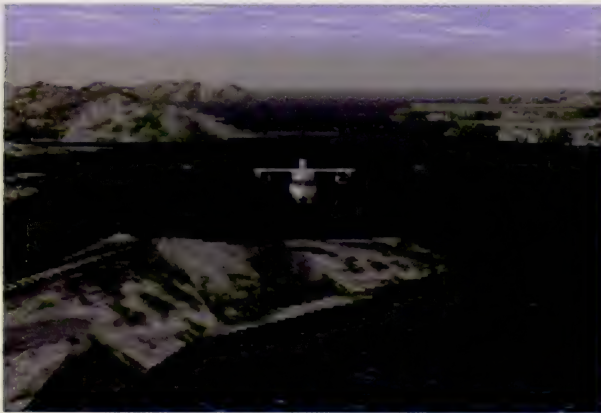
You'll fly over some of the new resort hotels and find many the "leftover" US airfields from World War II. You can even fly your chopper to and from an oil platform. Pilots has integrated all of the airports into the FS98 Airport & Facilities Directory.

Pacific Islands	
SRP	\$34.95
For Microsoft FS5.1, FS95 and FS98	
From:	Pilots Wipplingerstr. 24-26 A-1010 Vienna AUSTRIA
Phone	+43 1 535 40 10
Fax	+43 1 535 40 10
Internet	www.austrodata.at/pilots
e-mail	pilots_gesmbh@compuserve.com

Norway

The team of Arne Sundsbo, Bengt Larsson and Svein Holbo recently completed a new version of the extensive scenery of Norway. The new **Norway98** is available for free download from their web site. Their scenery has 82 Norwegian airports in detail and features more than 3500 miles of rugged coastline, 4500 mountains and 2000 ground polygons, rivers, lakes and roads.

Here's an example of the coastline and mountains in the Hammerfest area. You'll also fly through the fjords in this beautiful scenery collection.



Norway98	
Freeware	4MB
Filename:	allnav98.zip
For Microsoft FS98	
From:	Arne Sundsbo, Bengt Larsson, Svein Holbo
www.sol.no/games/flightsim/norway98	
e-mail:	sholbo@online.no

Flight Sim Developers

In keeping with their promise to support developers of add-ons for **Microsoft Flight Simulator 98**, Microsoft posted the **Instrument Panel SDK (System Development Kit)** on their web site for free download in November. This kit contains details and examples for writing programs for modifying existing or creating new instruments for FS98 aircraft.



In late January, Microsoft added a second "kit" for developers. The **Aircraft Container SDK** has the details for customizing existing or new aircraft, including the colors, panels and sound. This second kit is actually merged with the first, so a single download gives you the information and examples for both instrument panels and aircraft. The information is presented as a series of Windows 95 Help files which you can print for off-line reference.

You can find the SDK at Microsoft's Flight Simulator site located at <http://www.microsoft.com/games/FSim/downloads.htm>

The Virtual Hanger

Flying Without Turbulence in FS98

by Tim Dickens



Some tips and tricks for getting the most out of Microsoft's Latest Edition

Since Microsoft Flight Simulator 98 landed on the shelves last September, reviews from the press and the flight-sim community at large have applauded the greatly enhanced scenery, aircraft, panels and 3-D capability. This latest edition offers tremendous improvements over the previous versions. Virtually every aspect of the simulator has been greatly enhanced, from the flight models to the view out the window. What is in order now is a discussion of some of the most important functions of the program, how they operate, and how to use them to get the most benefit. This article is intended as a resource for you to use to reduce the turbulence that can only be expected when utilizing an advanced and complex program like FS98.

Installation

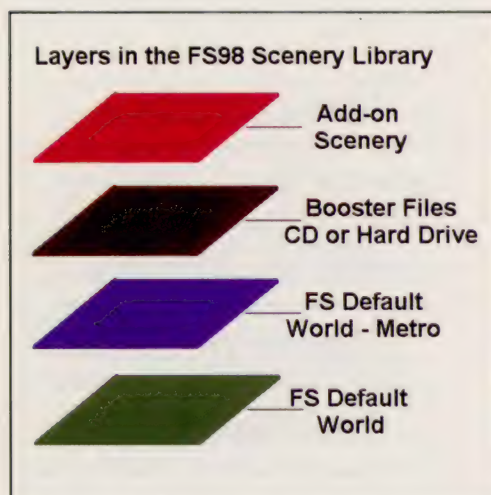
To utilize the full capabilities of FS98, and to avoid confusion later on, a good understanding of how you have installed the program is very important. If you chose the "typical install," your scenery booster files remained on the CD. In this case, you only have access to the extensive scenery provided with FS98 when you have the CD running at the same time. If you selected the custom install, you were given the option to install some or all of these files to your hard drive. Smoother performance is generally reported when the booster scenery files are installed on the hard drive. If you have the available space (400 Megabytes), I highly recommend this option. In this case, the menu under **World | Scenery Library** **Performance** will not show the location of these files on the CD-ROM (see Figure 1, page 14). You will find them located in the **World | Scenery Library** **Files** menu (see Figure 2, page 14). It is important that they are selected as active (+) and on a priority level above Default Metro and Default World. Otherwise, the scenery you wish to fly may not show up.



The Scenery Library

Have you ever added scenery to **Flight Simulator**, only to find all of the runways floating in the air or seemingly "buried" underground and sliding under your feet. This happens when the scenery is installed incorrectly in the Scenery Library, and is conflicting with other scenery occupying the same geographical coordinates. The scenery library is your window to the FS scenery world. Understanding how it works and why can prevent a lot of headaches and allow you to make full use of all of the wonderful add-on scenery available. The rules on how it operates are both simple and inflexible.

First, a brief understanding of how the FS scenery world is constructed will be useful. The virtual world in **MS Flight Simulator** is constructed in layers, arranged by priority. The highest level of priority (layer) is 1:



The FS Default World consists of synthetic textured tiles, which cover the entire globe. It is the synthetic tiles that determine the altitude above sea level (ASL) for every geographic coordinate in the FS world. The FS Default World Metro consists of other elements, such as the magnetic declination, the navigational aids and any dynamic scenery elements within the default FS98 scenery. The booster files contain

the rest of the default FS98 scenery you see out the cockpit window, in most cases including a new set of synthetic tiles.

The hard and fast rule of the Scenery Library layers is that the highest layer has priority. That means that sets of synthetic tiles in the higher layer will

override those in the lower layer. So the ground altitude at a given coordinate may change when the booster files contain synthetic tiles of a different altitude than those of the FS Default World. Likewise, when new scenery with synthetic tiles is added to the Scenery Library, and the priority layer is above that of the booster file for the same coordinates, the ground altitude may change again. To carry this a step further, if two new scenery sets, each with its own set of tiles and covering the same geographic area, are added to the scenery library, the scenery placed at the higher layer will determine the ground altitude.

If a new scenery is constructed with a runway at say, 300 meters ASL altitude, and it has a synthetic tile of the same altitude underneath it, the runway will appear normally if that scenery set is at the highest priority layer for those geographical coordinates. If the booster files, or another scenery set that covers/overlaps those same coordinates are at a higher layer, your runway may appear to float in the air, or seem buried underground.

Keeping your Scenery Library in good working order, and within a reasonable size, will make your simming life easier. The first step in managing your Scenery Library is to have a good understanding of how to add new scenery to it.

Managing The Scenery Library

Keeping your Scenery Library in good working order, and within a reasonable size, will make your simming life easier. The first step in managing your Scenery Library is to have a good understanding of how to add new scenery to it. As anyone who makes use of the variety of add-on scenery available will tell you, the instructions for scenery installation that often come with them leave much to be desired. Here is a general guideline for installing scenery. First, you must know that data for the Scenery Library is kept in a file in the FS98\Scenery folder called "World.vis." It is absolutely essential that you have a working, uncorrupted World.vis file if you want to use FS98! For this reason, I strongly recommend that you always keep a backup copy of the World.vis file, and make sure you save a copy before you make any changes to the FS98 Scenery Library! Save early and save often. Without this file, FS98 will not work!

To install new scenery, open the Scenery Library by selecting **World | Scenery Library...** from the menu bar. You will immediately see a warning

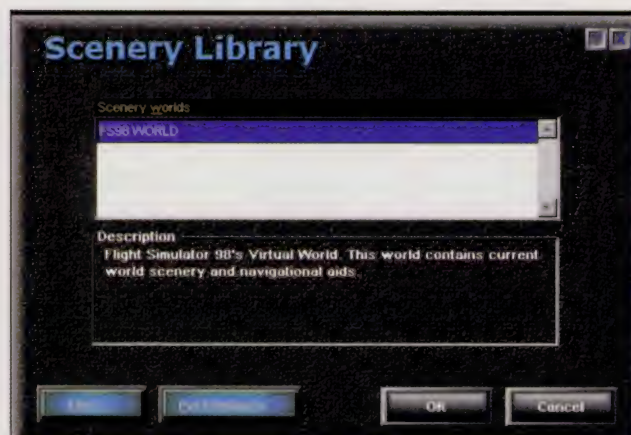


Figure 1
The Scenery Library menu

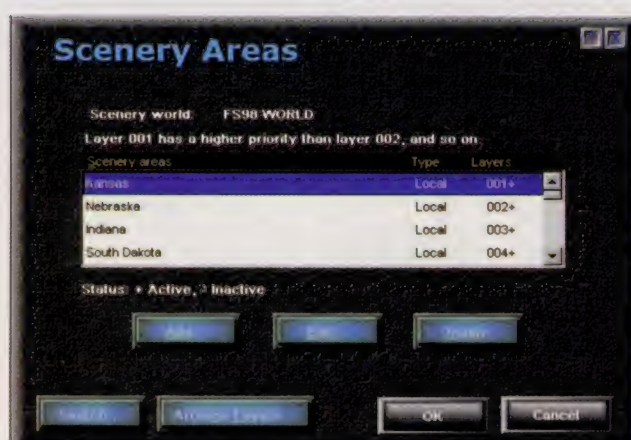


Figure 2
The Scenery Areas menu

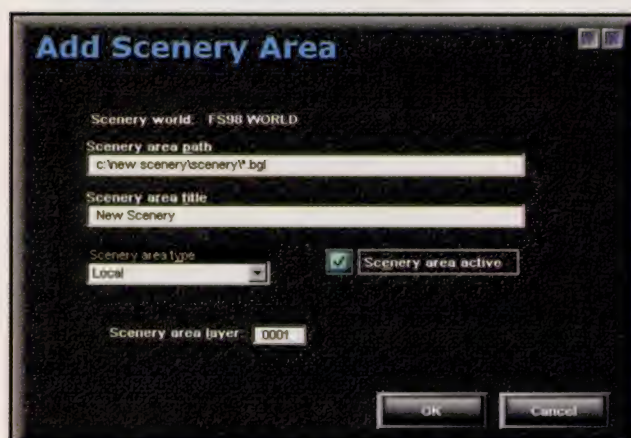


Figure 3
The completed menu

can be located in any directory or partition on your hard drive, but it *must* be in the standard format that FS98 recognizes. Assuming your new scenery directory is called "C:\New Scenery," make certain that all scenery files (files with the extension .bgl) are placed in a subdirectory called "scenery," i.e., C:\New Scenery\Scenery. This is how FS98 will look for scenery files. After the scenery files are in the proper directory, complete the menu as illustrated (see Figure 3).

The complete path followed by "*.bgl" will enable the rest of the menu parameters. If a path is specified that does not exist, or does not contain .bgl files, the program will not let you complete the rest of the menu. Unless your new scenery is covering an entire continent, or the entire world, select "local." Select "active." Then specify the scenery layer, keeping in mind the rules of scenery layering outlined before. Press **OK**. You will be returned

Make certain to enter the complete path to your new scenery. It can be located in any directory or partition on your hard drive, but it must be in the standard format that FS98 recognizes.

telling you that if you proceed, you will surely perish! Ignore this warning and proceed by clicking **OK**. You will then be confronted with the Scenery Library menu (see Figure 1 above).

The button marked **Performance** is for the booster files *when they are left on the CD*. If you have installed the

boosters onto your hard drive, this section has no function. Go directly to the **Files** section, and the Scenery Areas menu (see Figure 2).

Select **Add...**. You are then presented with a menu to add new scenery. Make certain to enter the complete path to your new scenery. It

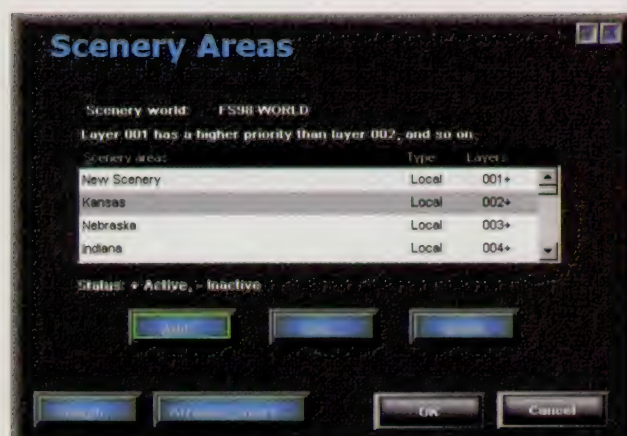
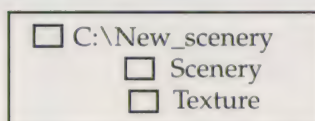


Figure 4
Arrange scenery layers or deactivate scenery sets here in the Scenery Library Files menu

to the main Scenery Library Files menu, where you can arrange scenery layers or deactivate scenery sets if you wish. (See Figure 4.)

Sometimes, conflicts may occur between different sets of add-on scenery. This is very difficult to overcome, since scenery designers often use inconsistent data when constructing scenery. This leaves you with a quandary. Which scenery do I place at the higher layer? One solution is to only have one set of scenery for that geographical area active in the Scenery Library. You can do this in the main Scenery Library Files menu. Another good alternative is to use the excellent utility **AreaMan**, by Alessandro Antonini. It is a freeware utility that is available on the Internet at several download sites, such as <http://wings.ark.com/fs98.html>. This neat little utility will allow you to make changes in your World.vis file, such as adding scenery, activating/deactivating scenery, arranging layers and much more. And most importantly, it automatically saves a copy of the old World.vis file!

New scenery packages come with their own set of texture files, more often than not. There are two ways to install these textures for use in FS98. Method one is to make a second subdirectory for them in your C:\New Scenery folder called "Texture," like this:



You do not have to do anything special in the Scenery Library in order for FS98 to find these textures, as long as the subdirectory is called "Texture" and it is located as a subdirectory of the same scenery folder. The only exception to this are textures which are labeled "Seed*.r8," e.g., Seed20.r8. These are special textures which scenery designers can use as synthetic tiles (unlike most other textures). These particular textures must be placed in the main FS98\Texture folder, or FS98 will not be able to find them and you will see large, flat, colored squares in the scenery, instead of the textured ground the author of the scenery intended.

The second method to install texture files is to simply place all textures, no matter what, in the main FS98\Texture folder. There are wide differences

of opinion here as to which method is better. Some believe that it is better to keep textures particular to a scenery in a separate directory with the scenery set, in case different textures have duplicate names, and to keep the size of the main FS98\Texture directory to a minimum. Others, such as myself, believe that it really does not matter how big that texture directory gets, as it will not really affect the performance of FS98 in any way. That way, you have all textures together in one place, and you reduce the space taken up on your hard drive by the same textures being placed into separate folders again and again. The choice is really up to you.

The Aircraft Library

Flight Simulator 98 makes it easier than ever before to add aircraft and panels created by third-party designers. The essential component here is the **Aircraft and Adventure Converter** (Aafconv.exe), available free from Microsoft on the internet at <ftp://ftp.microsoft.com/deskapps/games/public/flightsim/fsconv98.exe>. This is a 1.5-megabyte download, but it is well

Continued on page 52

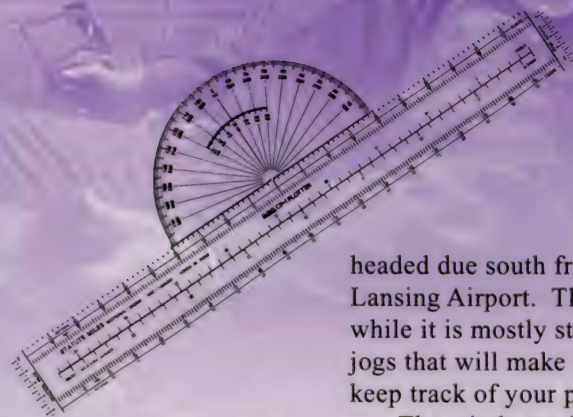
An excellent utility is AreaMan, by Alessandro Antonini. It's a freeware utility that is available on the Internet at several download sites. It lets you change your World.vis file, including adding scenery, activating/deactivating scenery, arranging layers and much more.

Virtual Flight School

Border Run

Cross Country

By Alfred Poor



NOTAM:

Since its debut four years ago, "Cross Country" has been written so that anyone with the floppy-disk version of Microsoft Flight Simulator 5.1 could complete all the flights using just the default scenery. In that time, Microsoft has released the CD-ROM version of 5.1, then Flight Simulator for Windows 95, and now Flight Simulator 98; each release has expanded our virtual world by including more default scenery. To take advantage of these additional destinations, this "Cross Country" flight will be planned for the default scenery included in the Microsoft Flight Simulator 95 version of the program.

Twenty-five flights ago, the first "Cross Country" column started at Meigs Field in the Chicago region. This marks the sixth flight in this area, and we'll take advantage of it to go back to some old-fashioned navigation techniques based on ground-reference pilotage. You'll also find that you'll have to cope with weather conditions that offer a bit more challenge than the standard calm and clear default weather.

Planning a Route

Our last flight in this area ended at Lansing, and on this trip you'll head south to Vermilion County Airport near Danville, Illinois, site of an annual hot-air balloon festival in June. Figure 1 (page 17) shows a portion of the Sectional Chart for this area with your route highlighted on it. A quick scan of the area between the two airports shows that there is no special use airspace that you have to be concerned about, so we are free to plan a route using just about any method that we choose.

Note that there are a pair of VOR beacons conveniently located along the route. You could fly from Lansing to the Chicago Heights VOR, which is only about two nautical miles (nm) from the runway, and then you could take a straight shot to the Danville VOR about 73 nm to the south, at which point the destination airport would be a highly visible four miles away. This route would be straight, efficient, and potentially boring to the point of tears.

Instead, you'll rely on the traditional "Mark I Eyeball" as your primary navigation instrument, using an "IFR" flight plan, which in this case stands for "I Follow Roads."

On the chart, you'll see a highway

headed due south from just east of Lansing Airport. This is Route 41, and while it is mostly straight, it has a few jogs that will make it easier for you to keep track of your position as you travel.

The winds are forecast to be from the southwest today (and we'll discuss winds more in a moment), so you'll be taking off from Runway 27 at Lansing. This puts you headed away from Route 41, but Route 394 makes a "fence" to your west. After you take off, turn south to follow it, and then east (Route 30 will come into sight starting a few miles east of the airport), and then turn south to follow Route 41. These intersections are all within about a three nm radius of the airport so you'll have to look sharp to make sure that you're following the correct road.

Once you're over Route 41, it's just a matter of checking your position and progress against waypoints on the ground. Figure 2 (page 17) shows your flight log for this trip with the numbered waypoints matching the points marked on your route in Figure 1.

The first reference along Route 41 is Cedar Lake, about 15 nm south of the intersection with Route 30. Next, you should come across Lowell Airport southwest of the town of Lowell, Indiana. It's a dirt strip, but it's 3,050 feet long and 100 feet wide, so it's a handy stopping point. (If you're feeling hungry, stop for lunch at Conela's, just two miles from the airport.) Route 41 jogs to the left just north of the town of Schneider, and again just south of town. In between, it crosses over the Kankakee





Figure 1:
*The Sectional Chart
showing your route.*

River, which makes a good waypoint. Next, you'll see a lake on your right. This is the Willow Slough State Fish and Wildlife Area, and the jog to the

right on Route 41 just south of this lake is the next waypoint.

Your next waypoint is the town of Kentland, which you can identify by the Iroquois River just north of town, and

Route 24 running east-west through the center of town. Just south of Kentland, the road bends to the southeast and then heads south again. Then south of Boswell, the road splits; go right at the

VFR Flight Log

Date: _____

Departure: Landing (3HA)

Destination: Vermilion County (DNV)

FIXES	ROUTE 1		ESTIMATED		ACTUAL TIME
	MAG COURSE (1)	NAUT MILES	GROUND SPEED KPH	TOTAL TIME	
1. Depart Lansing; turn south at 1,000 MSL, then west to Route 41	varies		80/130	1(2)	
2. Intersection of Routes 30 and 41	180°	10	123 (3)	7	
3. Cedar Lake		17		10.5	
4. Lowell Airport		26		15	
5. Kankakee River		30		17	
6. Bend in road south of Willow Slough		42		23	
7. Intersection of Routes 24 and 41 in Kentland		54		29	
8. Fork at junction of Routes 63 and 41		81		42	
9. Bend in Route 68		84		44	
10. Arrive Vermilion County		94		49.5 (3)	

(1) all headings are approximate
 (2) take-off and initial climb-out
 (3) airspeed 130 knots; ground speed corrected for crosswind
 (4) plus 3 to 5 minutes to land

Lansing Municipal
 Coordinates: 41-32.39; 087-31.93
 Elevation: 616 MSL
 Pattern altitude: 1,414 MSL
 Runways: 9-27 3,658x75 asphalt; 18-36 2,322x77 turf
 UNICOM/CTAF: 122.7

Vermilion County Airport
 Coordinates: 40-11.97; 87-35.73
 Elevation: 696 MSL
 Pattern altitude: 1,695 MSL
 Runways: 3-21 5399 x 100 asphalt; 16-34 3999 x 100 asphalt; 12-30 2500 x 150 turf
 UNICOM/CTAF: 122.7

Figure 2:
Flight log of your route from Lansing to Danville.

Virtual Flight School



Figure 3:
*Use the World
Weather dialog
box to set up the
winds and clouds
for this flight.*

fork to follow Route 63.

Soon after you make this turn, you should be able to see Danville ahead of you, with Lake Vermilion to the northwest of town. As soon as you're certain that you see the lake, turn toward it; the airport should be between you and the lake.

Airports can be difficult to spot, and altitude is your ally in locating them, so stay at your cruise altitude (which we'll discuss in a moment) until you see the airport. Then you can start your descent to the airport pattern altitude, which is 1,695 feet MSL (above mean sea level). Make a 45-degree entry on a left downwind leg for landing on Runway 21, and all you'll have left to do is the landing.

Blowing In The Wind

Now, we have not yet decided what your cruise altitude should be. On the one hand, being higher makes it easier to spot landmarks, and gives you extra time to react and find an emergency landing field in the unlikely event that your engine decides to end the trip before you reach your planned destination. On the other hand, a lower altitude helps when you're following a road, which can sometimes be harder to track if you're way up high. And on this flight, there's another factor that favors a lower cruise altitude.

Earlier, we mentioned that the winds are forecast to be out of the

southwest. In fact, this is going to be fairly typical winter flying weather with a deck of clouds overhead and a brisk wind. The fact is that the winds are forecast to be stronger as you go up in altitude. Your route takes you roughly due south, and the winds are forecast to be at 240 degrees, about 15 knots above 1,000 feet, and 25 knots starting at about 3,000 feet. Unless you have a good reason for wanting the flight to take longer, you'll want to stay low and out of the stronger headwind. Checking the chart, there are no obstructions or terrain features above 2,000 feet anywhere near your route, so we'll plan on 2,500 feet as a safe cruise altitude that will still keep you below the stronger winds.

There is one additional factor that you'll have to consider as you fly. Your path over the ground will not be the same direction as your flight heading. If you aim straight down Route 41, the wind will blow you off course to the east of your intended route. As a result, you'll have to head a bit to the right of your course in order to counter the effects of the wind. You'll have to experiment a bit to find the right amount of correction that will keep you headed down the road.

Getting Ready To Fly

The first step is place your airplane at Lansing Airport. Use the **World | Go to Airport** command to find the

Lansing choice under the USA - Chicago area. This will place you on Runway 9; before you take off, you will have to back-taxi the length of the runway so that you can take off into the wind using Runway 27. The next step is to set up the weather settings. (If you have not already done so, use the **Options | Preferences** command, and on the General tab, choose Use Advanced Weather Dialog.) Use the **World | Weather** command to open the Advanced Weather dialog box as shown in Figure C and on the Clouds tab, choose Add a Layer, and choose Altostratus from the Cloud Type list.

Next, choose the Winds Tab, and choose Add a Layer, and for the Lower Layer, pick a base of 1,000 feet, tops of 2,999 feet, speed of 15 knots, and direction 240 degrees. Leave the Wind Type as Steady and the turbulence all the way to the Light end of the slider. Then choose Add a Layer again, and create Layer 1 so that it has a 3,000 foot base, 10,000 foot tops, 25 knots at 240 degrees, with a Wind Type of Gusting and two notches of turbulence. This will be a good reminder for you if you should let your altitude creep up above your planned cruise altitude.

Now would be a good time to save this flight so that you can fly this trip again without having to reenter these settings.

So now you're all set to take off on your run down the Indiana/Illinois border, with the wind in your teeth and the open road below you. And best of all, you won't have to worry about any speed traps along the way!



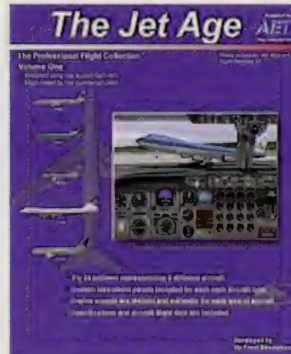
Professional Flight Collection

The Jet Age

"The Aircraft & Panel Collection for Microsoft Flight Simulator 98® that you've been waiting for...*has finally landed!*"



Each aircraft types comes with its own custom panel...even custom engine sounds are included



Take off with 5 modern jet aircraft in 25 of your favorite airline liveries



Aircraft designed by professionals and flight models tested by real commercial pilots guarantee you the most realistic flight models

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"The first system designed exclusively for the serious flight simulation enthusiast"



- Progressive response tension system for a realistic feel
- Scaled to the size of an actual airliner yoke
- Real electric elevator trim function with audible feedback
- Clip holder for approach charts
- Standard 4-button analog joystick functions
- works with any flight simulator using a joystick interface
- 2-handle "jet-style" power quadrant with yoke interface
- Heavy-duty steel base with mounting brackets
- Highest quality construction & components
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The Very Best Of 1997

by Peter James



I will remember this year as one of the best “flightsim” years of recent memory. Now, a true flightsimmer like myself enjoys any year he or she can spend considerable time enjoying the world’s greatest hobby. To me 1996 was just that kind of year. We were happily flying FS95 or unhappily spending too much time trying to get it to work right. But 1997 was a good year for us; just the beginning of a trend in my mind.

I have always wanted have my own flightsim award’s show, so I am taking this time to brand various products the “Best of 1997”. Some of you may disagree with me, and that’s fine. As much as I enjoy writing, I enjoy reading other people’s reviews and commentary and often see things from a different but valid point of view. I am still a novice at multi-player, and that’s a hot topic these days. But I haven’t tried it much, so if I don’t mention a particular add-on that’s related to that subject, I apologize. Not all of my opinions will be from my own experience. I put a lot of stock into what participants on the newsgroups report as good, and will mention those too.

Microsoft Flight Simulator 98

My number one pick for the very best of 1997 goes to **Microsoft Flight Simulator 98**. This is no surprise, but I feel many would love to hate the latest release. I for one am grateful the most famous PC sim in the world continues to grow and every autumn bring thoughts of FS to mind. Autumn is for fall foliage just as much as it is for new flightsim versions! FS98 is the best in the series. Gone from the shelves are FS5.1 and FS95 (FS6). Even in the days of FS95, I still used FS5.1, as I liked it much better overall. But I can honestly say they are packed away for good, and I have become a major FS98 fan. The entire program has been improved in so

many ways, the list could be lengthy. But my biggest congratulations to the FS98 team come from the newly improved aircraft flight models (the #1 most important feature of any sim), panels, sounds and program integrity. As most of you are well aware of, the add-on panels that third-party creators (and now commercial publishers like Alpha Software and AETI) are designing are simply amazing.

As in previous versions of FS, the supply of high quality, free aircraft, sceneries and adventures is never ending. The add-on world is in its best hands ever with FS98! And we finally have much improved sounds that can be tailored for each airplane as well as individual functions. And while you fly, you no longer need to fear the “illegal operation,” as FS98 is by far the most stable and “bullet proof” version yet.

Most of you are well aware the add-on panels designed by third-party creators and commercial publishers are simply amazing.



Approaching Denver International Airport



*Flight Unlimited II
and some sample
screens.*



This is a flight simmer's dream come true! I can't forget to mention the fact that FS98 has finally brought us complete USA scenery right out of the box! Most airports are there, and they all have taxiways and buildings.

3-D add-on video cards

Thanks to Microsoft I have learned about 3-D add-on video cards and I can tell you once you've seen FS98 in 3-D style, there's no going back to the "old way." Sure, FS98 does make you spend money on hardware and additional software, but in this version, as opposed to previous versions, I feel you really get your money's worth. In my flightsim mind as well as my real pilot's noggin' I am happy to tell you FS98 is still the most overall, realistic flight simulator available. I really value FS98 for airline flying.

Flight Unlimited II by Looking Glass

In close second to the most realistic flight simulation, is the recent "award winning" release of **Flight Unlimited 2** by Looking Glass. I was astounded by its quality and feature packed highlights. Not only did they manage to run this simulator through the easiest menu system I've ever seen, they build a solid, complete general aviation simulator that's 100% ready to run from the beginning. You won't have to spend hours setting up controls, sounds, panels, planes or sceneries. It's all there. From the "Trainer 172" to the Baron, the planes fly realistically and come with the most excellent true sound effects I've ever heard. So it flies well, but what about only being able to fly in the San Francisco area? Well, I can tell you what you get is the REAL San Francisco area detailed right down to every 4 meters of the earth's surface. Who can argue with that? You'll fly in pure photo-realistic scenery that models

The Very Best Of 1997

every contour, highway and hilltop that exists in real life.

This is the future of flightsim scenery. That's exciting! You can't get more realistic than photos. To add to the realism, FlightII incorporates the very best ATC of any sim. While it has some limits, the reason I feel it's the best is that it's completely dynamic and will react accordingly to your actions. In addition you will be flying in the airspace with several hundred more aircraft that all physically exist and are on intelligent flight plans. If you fly to Half Moon Bay for some touch 'n' go practice, you'll actually see the aircraft that are participating on the Unicom.

Looking Glass has packed the equivalent of Microsoft's Cessna, an accurate instrument panel, real sound samples, add-on adventures, dynamic scenery and the photographic scenery all into one package.

We can't forget Flight 2's weather, where visible rain drops clouds and thunderstorms will knock your socks off! For the first time in flightsim history, we have a real competitor to Microsoft's sim. **Flight Unlimited II** gets you airborne quickly into the most complete General Aviation experience (a.k.a. — the small planes only) on the PC.

FS98 and airliners

As I mentioned earlier, I love FS98 for airliners. The great flight dynamics, panels and numerous add-ons have led to a very accurate world of virtual airlines worldwide. One thing has always been missing. Accurate engine startups, shutdowns, troubleshooting, cabin pressurization control, anti-icing, random emergencies, and true FMS navigation. Real airliner systems are complex and demand attention in the real cockpit, but not so in FS98. This is where the 747-400PS1-flight simulation comes in. Early summer of 1997 brought to the flightsim

world the most advanced, complex and functional flight simulation program ever made for the PC. Hardy Heinlin, the masterful programmer who brought this seven-year project to life, will go down in the history books. Currently the PS1 simulation has been upgraded twice, now we are up to version 1.2. Once you make the initial \$250 purchase, future upgrades are free. What you get for the money is a mind boggling (in a good way!) simulation of nearly 90% of all the systems on board the 747-400. You will learn, operate, troubleshoot, and master the typical operation of its glass cockpit systems and display. Not only that, you will of course be flying the 747-400 either with the autopilot or by hand. When you're above 10,000 you're almost entirely on the autopilot, but fear not! The automation and realism of its usage will keep you busy at cruise altitude. Then for the rest of any flight you'll be dealing with the FMS navigation computer (the heart of the program) and the myriad of systems. The program has numerous "ready made" flights to start off with and challenge you, but the real fun is when you do flights from a "cold cockpit". Complete from door closure, battery and powerup, to engine starting all the way to battery off with everything in between - this is no one hour simulation. What you will do occurs in real time. It may take an hour just to go through the checklist and get the engines fired up! To put the icing on

the cake, PS1 has all the accurate sounds and aural warnings taken right from the real simulator. PS1 is for anyone wanting to fly the 747-400. This program has been extremely promoted among the real airline pilot community. Anyone who can accept the fact that it is not a visual simulator (except on takeoff or landing), may proclaim this to be the most realistic flight simulation ever made for the PC. See your favorite flight simulator software vendor for purchasing information.

Laminar Research's X-Plane version 3.0

So far I have mentioned three outstanding flight simulations of 1997. Is there room for a fourth? You bet. While not originating in 1997, Laminar Research's **X-Plane** version 3.0 was released. This was a much-improved version over the previous and in my mind still holds strong as one of the very best flightsims ever made. Offering a virtually unlimited selection of stock and add-on airplanes as well as the first true helicopter simulation of its kind, **X-plane** blends IFR and VFR flight very well. World navigation, terrain elevations, interactive ATC and the most realistic weather of any simulator make flying realistic and challenging. You can have either "live" weather piped in from an on-line source while you fly or set up your own.

Thunderstorms, microbursts, windshear, snowstorms, icing, fog and clouds are so well modeled, it is good training for any student or real pilot wanting to learn more about weather. While it doesn't have the visual textures of FS98 or Flight II, **X-Plane** offers smooth frame rates and flight quality with high-resolution 2-D graphics and outstanding sound effects. If you're an aircraft designer, be sure to spend time with the other half of the program, which offers a great



factory. For \$200 or less, you get the main program, and all free upgrades to follow. Product support is outstanding, and the author makes sure to implement ideas from all the customers. This summer is the expected release of version 4.0, which will have big time 3-D graphics. This too will be a free upgrade for existing customers. See <http://www.x-plane.com> for more information.

We have four outstanding baseline flight simulations that are sure to grow and be added onto over time. These appear to be the civilian simulations that will carry us beyond the year 2000. I will always remember this year as the year of excitement and happiness over TOP QUALITY products being released.

Great add-ons and extras

Now for some of the great add-ons and extras that makes flightsimmming so special.

Project Freeware Group

My award for the best freeware airliners goes to the **Project Freeware Group** (<http://www.avsim.com/mike/pfree/index.html>). They have not only created the most consistently best flying airliners available, but they are certainly the best looking as well. In 3-D mode, the shiny bare metal textures are simply stunning. 3-D solid wheels, leading edge slats, flaps, accurate night lighting, etc., are standard on all models.

I have flown all their planes and have not found one that I would call less than outstanding. To obtain the very best airliners available can be one thing, but these are all for free! The PFW group is adamant about remaining free, and their dedication and frequent additions is truly award winning!



**Project
freeware
Group**

Squawkbox and ProController

Imagine a world where you could call up a live person when you're inbound to BOS and receive real time, live ATC vectoring. Thanks to Mr. **Jason Grooms** this is a reality with **Squawkbox and ProController**.

This web based live ATC system was developed by one man alone and has connected many a simmer around the world to real live air traffic controllers that man various sectors during anytime of day or night. This is one service that you can't miss out on. I have yet to try it myself, but based on the rave reviews this system gets, I can only feel like a lazy fool. Please visit the ProController web site linked from www.avsim.com.



David Drouin's portable GPS receiver

David Drouin's portable GPS receiver is another one of those freeware gadgets that any serious flightsimmer ought not to be without. If you have seen a real

GPS, then you will know how to use this one. If you have not, you're in for a few easy lessons and then you'll be flying in style. This portable unit can be placed anywhere on your instrument panel for easy access. It will display bearing, time, ground speed etc., enroute to one or more waypoints. It works just like the real thing!

Mr. Drouin deserves an award for this innovative add-on that's sure to grow and continue over time. Be aware that some 3-D cards will not support the GPS in "full window 3-D" mode.



Pick up this program at most on-line flight simmer's web sites.

Eric Ernst's Freeware Panels

Finally, I can't honestly remember if **Eric Ernst's Freeware Panels** (<http://www.erols.com/kordos/>) were available in 1997, but his remarkable glass cockpit panels of just the last two months deserves praise of the highest level. New gauges, working radio altimeters, better CRTs, realistic avionics and more are all available for free.

These aren't great just because the price is right. They are great because at the time of this writing they are the most functional, realistic looking detailed airliner panels available anywhere. In many ways they exceed the functionality of commercially available panels. Mr. Ernst is an airline pilot. He knows what he's doing.

It's been a great year for us all. 1998 may not bring any new baseline simulations for the civilian fan, however the sceneries, panels, adventures, and aircraft are likely to keep us so busy we won't even notice. On a personal note, I am so glad virtual airline flying is so highly popular. That's my very favorite type of simming. Nothing beats a great landing in a 747 after a seven-hour transatlantic flight. I hope that PS1 gets a visual system soon to blend perfectly with its systems simulation. I hope Flight Unlimited's graphics and ATC go nationwide! I hope somewhere in 1998 I can find myself flying among solid, 3-D towering cumulous clouds that grow dynamically. This has not yet been done, and when it is, our skies will come alive much as I have experienced in my real life flights! Blue sky and puffy clouds to us all!

Scenery Design Corner

Designing and Making Scenery



by Justin Tyme

Part I: Laying The Groundwork

Making scenery is fun! That said, it can also be hard work, frustrating, hair pulling, and time-consuming. And much like hacking one's way through the jungle, you can become lost and overwhelmed by the sheer complexity of it all.

Hundreds maybe thousands of hours are invested in a major scenery project—all with the probable knowledge that it will never be “finished.” Hours can pass while you struggle with priorities or drawing order problems with a custom 3-D object macro. You can be befuddled for hours by a coastline that refuses to display because of one simple little parameter that you just cannot pinpoint. You may find yourself cloistered in your work area for days at a time, forget to shave, shower, or otherwise participate in the real life going on around you. Your friends and

family may think you have finally gone off the deep end and suggest counseling.

Well, okay. Maybe I am being just a bit hyperbolic, but there is a nugget of truth in all of this, to which any experienced scenery designer can attest. Nevertheless, if you follow through in spite of the obstacles, aggravations, and frustrations, there are few things in life as rewarding as creating scenery. It all comes home when you receive an e-mail from an end-user telling how much he appreciates your efforts and how much you have increased his enjoyment of this terrific hobby. That satisfaction makes all the time, energy, and labors well worth it, and is the reason many of us continue to be productive. Moreover, a good reason for you to be productive, too.

I am fortunate to have begun my scenery odyssey at about the time the first graphic user interface-based design

utilities came out, and I can only admire those early pioneers who wrote source code from scratch in DOS. I can only imagine the tedious debugging and back-and-forth between text editor and Flight Simulator to “see how it looks.” Whereas I can now create a small airport in a few minutes with **Airport & Scenery Designer**, back in those days it may have taken the better part of day—or longer! The current crop of scenery designers is standing on the shoulders of those earliest pioneers, and we all owe them our thanks and admiration for blazing the trail.

Having been through four major scenery projects over the past two years, all still in various states of evolution (remember, this scenery stuff is never “finished”), I have picked up a few methods and tricks of the trade along the way. I will be sharing much of that knowledge here in a series of four articles over the next few issues. Since I am in no way a technical guru, I will concentrate on procedures that will, I hope, be easily understood by the fledgling scenery designer. You will not find in-depth technical information here, but a few methods at which I have arrived through thousands of hours of making scenery. I hope these will be helpful to those just beginning scenery design, and maybe some of the more experienced designers can glean a few tips, too.

We will begin by laying the



Most designers start with an area with which they are familiar, such as their home region. They are familiar with the terrain, land use and ideally have actually viewed the area from the air.

groundwork, so to speak. In this first installment, we will choose our tools, find reference sources, and get everything set up. In Part II we will get things off the ground by placing airports and tiles, navaids, and taking care of the nuts and bolts. Part III will concentrate on visual scenery, macros, rivers, roads, mountains and terrain, textures, in short, the “eye” candy and optimizing code to keep frame rates as high as possible. In Part IV, we will put it all together, write the documentation, and distribute your scenery to the eagerly waiting simming community.

Choosing an Area to Model

Most designers start with an area with which they are familiar, such as their home region. They are familiar with the terrain, land use and ideally have actually viewed the area from the air. Most FBOs (Fixed Base Operator) will be willing to take you up for a quick joyride for a reasonable price. Such an experience is invaluable for

intimately familiar with the layout of the runway, taxiways, buildings and hangars. Also, the fact that my dad was a pilot (later a CFI—Certified Flight Instructor) afforded me the opportunity to take frequent flights over the whole region. I soon expanded my scenery to cover 16 airports in Western Pennsylvania and finally expanded it to cover the whole commonwealth of Pennsylvania and 75 airports, then

recreating an accurate virtual representation for your area so you can make your scenery “As real as it gets.”

I started, of course, with my local airport since I have been going there to watch the planes since I was about eight years old and am

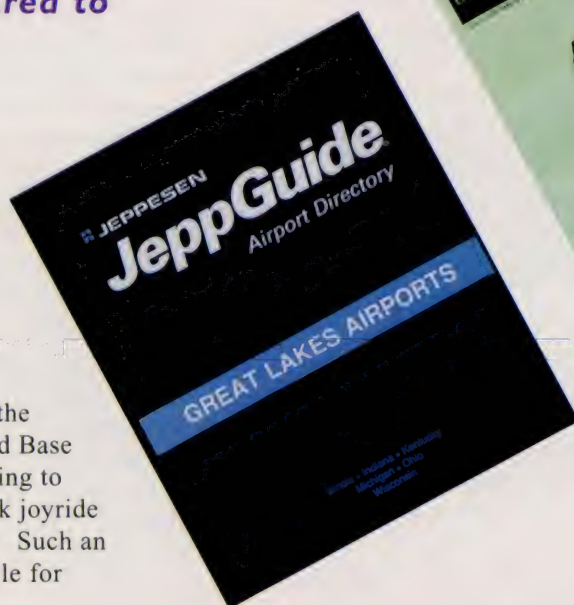
nearly 100 airports. The point is, start with an area you know and build it for your own use. Once you are happy with it, share it with the world simming community, and chances are they will be happy, too. Once you have gained some experience in an area you know well, it is easy to branch out into other areas and regions by doing a bit of research.

Finding Reference Materials

There is a wealth of material available from both free and commercial sources that will make it possible to create a highly accurate virtual representation of the real world. Since the core of flight simulation scenery is the airports, your first stop should be to your local FBO. Drive out to your local airport and just hang out. Make friends with the proprietor and talk to the pilots. Remember that many pilots are flight simmers, too, and in most cases, they will be very interested and helpful when they discover what you are doing. Since NOAA

Sectional Charts and Airport & Facility Directories (AFDs) expire on a regular basis and are no longer used by real world pilots, chances are that if you simply ask the FBO, they will just give you their expired books and charts if you ask them nicely. The AFDs will give much information about the runways dimensions, displaced thresholds, surface types, ILS, and navaids.

One important thing the AFDs will not give you is airport diagrams. You have several alternatives here. Low cost or free



Typical reference materials would include an Airport Facility Directory (AFD) and the JeppGuides.

alternatives include expired Low Altitude Charts and Instrument Approach Procedures (IAPs), and Terminal Procedures, most likely available from your FBO. Another good thing to have, if you can find a source, is the Department of Defense (DOD) Flight information Publications. In addition, most states publish an airport directory. Your FBO will know about these if they are available and can either give you one or tell you how to acquire one. Contact your state's or country's Department of Transportation and ask.

More costly, but worth their weight in gold, are the JeppGuides, published by Jeppesen Sanderson. These are divided into US regions and have airport diagrams and information for several states. The JeppGuides cost about \$40 and include a regular update subscription for one year. I use the Jeppguide for Northeast Airports. I would not be without it. These have runway dimensions, taxiways, aprons, hangars, beacons, and obstructions and in many cases even trees and surrounding roads. These little details separate the mediocre and good scenery from the truly outstanding scenery, so it is a good idea to have this information handy. Sporty's Pilot Shop also offers a complete line of aviation charts and books used by real-world pilots that are helpful in designing scenery.

Since we are designing a comprehensive, "as real as it gets" scenery package, we also need to have detailed terrain and land use information. We need to know where to put the mountains, how high, what shapes, and whether the land is

forested, farmland, suburban or dense city. I have found the Delorme Atlases and Gazetteers to be an invaluable source for this type of information. They offer coverage of most of the US with detailed topographical and land use data. These

You want to have accurate city limits, roads, rivers and coastlines, so a good atlas is necessary.

cost less than \$20 and can either be ordered directory from Delorme or found in your local bookstore. I have also recently become quite fond of Delorme's **3-D Explorer** software. This covers the whole US in 3-D detail and gives an accurate rendition of land use for the whole country. Another source for this type of information is the United States Geological Survey, which offers detailed topographic and land-use maps for a reasonable price. You can generally acquire these for around \$10. They have a variety of scales and areas available. International scenery builders should inquire to their respective national governments for availability and pricing on these types of materials.

Finally, we want to have accurate city limits, roads, rivers and coastlines, so a good atlas is necessary. The good old Rand McNally Atlas will work fine.

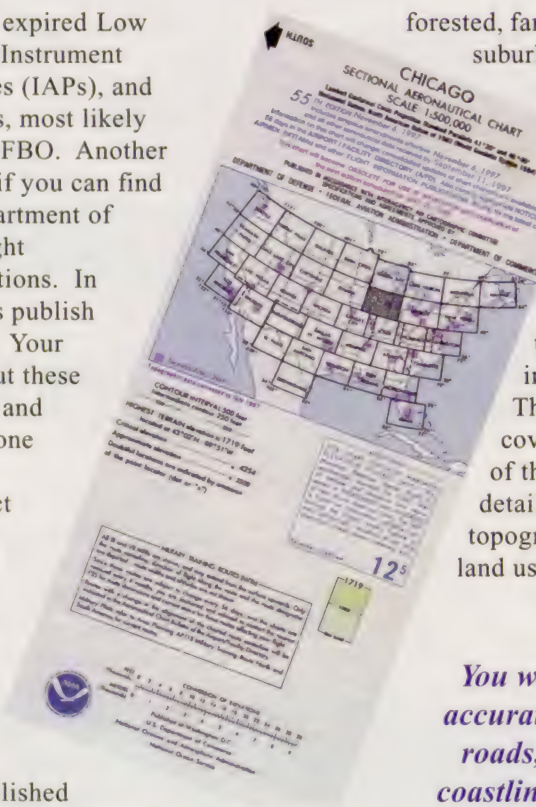
The Delorme Gazetteers have this information, but I supplement that with Microsoft's **AutoMap Streets Plus** which will give me an idea of city limits, river widths, coastlines, as well as clover leaves along the major highways for that extra bit of realism and detail. So now we've gathered up all our reference materials covering the airports and associated aspects, topography, hydrography, and land-use, plus man-made features. Now we are ready to get our toolbox in order.

Gathering Your Tools

As Windows95 has gained a strong foothold on the world's desktops over the past couple of years, scenery tools with a graphical user interface (GUI) have become the norm. This has opened the scenery gates to many who otherwise probably would not or could not master the often cryptic language of low-level source code. I am probably one such designer.

Though I have learned enough about SCASM to get me through some tight spots and allow me to do some customized tweaking here and there, I am certainly no SCASM guru. I have relied upon the hard work of others, most notably Peter Jacobsen, author of Abacus' **Airport & Scenery Designer** (ASD) and Raphael Sanchez, author of **Visual Object Designer** (VOD)—both essential GUI tools for creating scenery. See Useful Web Sites under the Reference section at the end of this article for information on obtaining these and other useful design utilities.

There are other tools out there, too. Pascal Meziat's **Airport 2.x**, Apollo's **Scenery & Object Designer**, and Aerosoft's **Scenery Designer**. I've used them all (with the exception of the Aerosoft product) and without a doubt the best of the bunch is Abacus' ASD. Airport 2.x is a very adequate freeware utility and if you want to wade into scenery design, it is a very good tool to start with.



It comes with many pre-defined objects and is relatively easy to use. However, if you are looking to create some industrial strength scenery and pull off a major scenery project with a very powerful and versatile tool, the only choice is ASD. Since I use ASD almost exclusively and I am intimately familiar with it, this article will concentrate on how to use ASD to create scenery.

Though ASD comes with many built-in objects and a few pre-defined objects, and there are many more 3-D objects available out there on the Internet, you still may find the need to create your own custom macro objects. The best tool available for this is VOD mentioned above. This is a freeware utility that allows you to create just about any kind of custom object you can think of and is highly recommended.

Another handy utility to have is a feet to meters converter. There are several commercial and freeware utilities that will do the trick. I use one called **Robconv** that cost me \$6 on the Internet. It will do a variety of conversions instantaneously. A search of the various Internet archives will turn up something for you to use for this function.

So now we have gathered our reference sources and gotten our design tools in order. Let us now get everything set up and ready to go.

Setting Up The Processing Directory

The first thing we will do is set up a processing directory. This is where we will output all our source files and compiled .bgl files from our various design tools. The reason I set up a processing directory is so I have an intermediate stop where I can do further processing of my files before they reach their ultimate destination a flight Simulator scenery directory. This is

especially useful in those cases where you want to link two or more .bgl files together or want to tweak a source file before compiling and copying it to your scenery directory. It also works well in those cases where you may have two or more separate projects going at one time. It is a central repository where all applicable files are stored and processed before copying them to your scenery directory by using custom written batch files.

Since this is an article about how I make scenery, we will use my setup as an example. I have set up a separate partition on f: which I use exclusively for my scenery design needs, and another partition, i:, which I use exclusively for Flight Simulator. I have all my scenery design utilities on the f: partition, as well as a directory called f:\process\scenery.

The first thing I do is copy all the command line programs I might want to run from this directory, such as scasm.exe, sclink.exe, scmex.exe, bgltxt.exe and bglst.exe. If you use the FSASM compiler regularly, you might as well copy that into your processing directory, too. The advantages to having a processing directory will become obvious as we proceed through this series of articles.

Setting Up ASD

I think one of the biggest omissions new designers make is in failing initially to set up ASD properly. Failure to do this may cause much unnecessary time and labor later as well as result in a great waste of precious memory buffer space. It may also cause a resulting deterioration of frame rates and possibly disappearing objects, especially in very dense scenery.

Preferences

Once the map (.scb) file is opened, the first stop should be to pull down the **File** menu and click **Preferences**. Here you will set the global preferences (for all maps) for the various region types—style, texture, and color, and the all-important visibility parameters. As you go about editing your map, these parameters will be the default. Choosing these parameters carefully will save much time during the editing process.

Once the **File|Preferences** dialog box is opened, first check that all values on the General tab are correct. Then click the Compiler tab and ensure those paths are correct. ASD's setup program should have already filled in these boxes for you, but it is good to double-check anyway. Make sure "Copy compiled scenery files to scenery directory" is *unchecked* since we are using the processing directory. Check "FS5.1/FS6.0 menus" if you want your airports to be accessible from those menu versions (see Figure 1, page 56).

Click the Colors and Display tabs and check the desired boxes. Click the Airports tab and fill on those values. I have found the default values here to be acceptable. Click the Taxiways tab and set up your desired default widths, color, texture, and style. These values can be changed later for individual taxiways, but these values will be the defaults for every taxiway you make later in Detail View.

Now comes the important part. While most of the above settings are convenience and laborsaving settings, these next will have a direct impact on frame rates and the memory buffer. Click the Region tab, select River, then the Style tab. Choose your desired River style. Click the Texture/Color tab and choose. Now, here's the most important one, click the Visibility tab (see Figure 2, page 56).

Continued on page 56

Feature Review

Pro Pilot

By Jim Rhoads

Pro Pilot has been released from its holding pattern and vectored for final approach on December 7, 1997. Many flight-sim enthusiasts have awaited the arrival of Sierra's latest launch into the flight-sim arena. *Full Throttle* takes a look at the new simulator's features, as well as its strength's and weaknesses.

Planes

Pro Pilot gives the pilot five aircrafts to fly: the Cessna Skyhawk 172P, Beechcraft Bonanza V35, Beechcraft Baron B58, Beechcraft Super King Air B200 and the Cessna CitationJet 525.

Heavy-iron flyers might be disappointed because no large commercial aviation jets, such as a Boeing 737/747, are available with this release. But if you like short hops the 172p will suffice. If you like fast cross-country flying, the Bonanza, Baron, and King Air will fill the bill well.

And if you are late for a meeting in L.A., you will be well pleased with the Citation jet.

Panels

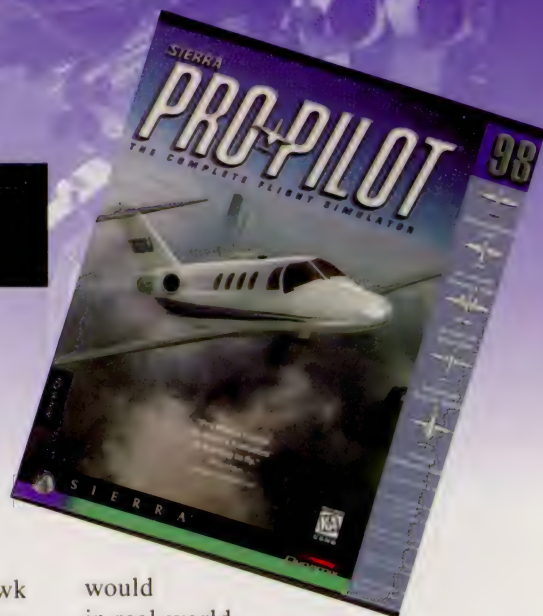
Panels in **Pro Pilot** are simply excellent. All panels are specific to each aircraft and very well laid out, as well as sharp and refined in detail. The Cessna Skyhawk 172P's Vor/Localizer, ADF navigation and the Citation's electronic horizontal situation indicator and RMI, turbine tachometer, internal turbine temperature indicators, fuel crossover switches, etc., are a few excellent examples.

You can go from basic VFR flying to very complex systems within the same program. If you have a question about any instrument, right-click with the mouse and you get a full explanation of the device and its function. **Pro Pilot** enhances realism by making you start each plane up as you

would in real-world aviation. You have to run through at least the minimums of your checklist to start the plane: proper fuel tanks, master switch on, full rich, turn the key, etc. Checklists are available for each aircraft.

Sounds

I found the sounds in **Pro Pilot** to be superior to anything I have seen in a general aviation flight simulator to date. Fire up the Citation, listen to it spool up and whine, and you'll swear you can



Panels in Pro Pilot are simply excellent. All panels are specific to each aircraft and very well laid out, as well as sharp and refined in detail.

*I found the sounds in
Pro Pilot to be
superior to anything
I have seen in a
general aviation
flight simulator to
date.*

hear when the fuel hit the engines. Crank up the Bonanza then listen to it chortle and gasp as you turn the starter switch over. These sound effects are very well done and make you feel as if you were in a real aircraft. **Pro Pilot** also has an ATC function that allows you to listen to (and see) other traffic and controllers. It allows you to step into the interactive realm. You may choose to have ATC guide you from the runway or even from a 20-mile approach vectoring you in to final. I like the ATC function, but found it a bit sensitive at times, especially on final vectoring and altitude variation (as critical as 100 ft.), requiring me to correct headings and altitude very frequently. Voices seem to be natural and realistic and Sierra has included information on how to use your own voice in the program.

Scenery

Sierra claims over 3,000 airports are included in **Pro Pilot**, as well as every navigational aid in the National Airspace System, including all VORs, ILS and NDB transmitters. In addition, it displays every major river, mountain, forest, city and lake with 27 million elevation points.

Access airports through the menubar two ways. The method shown here lets you position the aircraft on a graphical map of the United States and choose various options from the toolbar..



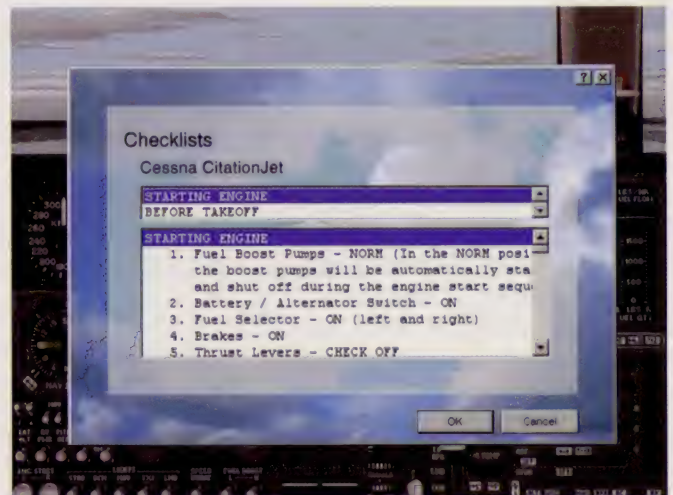
Pro Pilot also includes 29 photorealistic cities, each with more than a 60-miles radius of detail. Pilots can access airports through the menubar in two different ways. First, from the airspace option; **Pro Pilot** allows you to type in either the airport identifier or the name of the airport. Method two allows you to position the aircraft on a graphical map of the United States and choose various options from the toolbar.

This feature provides a very slick, easy-to-use interface for positioning the aircraft anywhere in the United States that you choose.

The view...

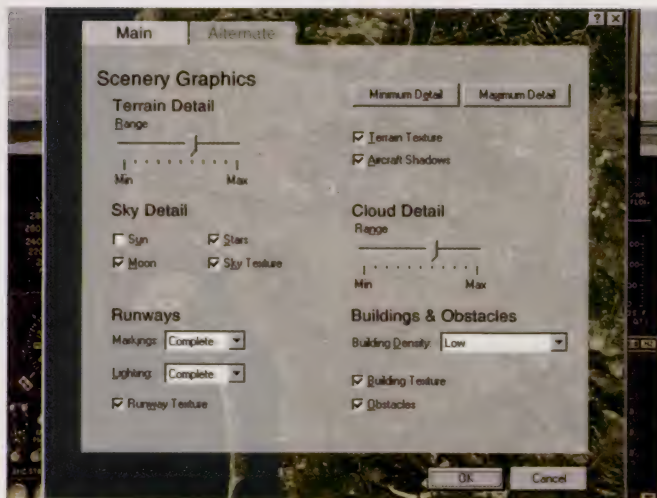
Pro Pilot at this time only runs in a 640x480 resolution. Although at higher altitudes the scenery provides a realistic view in populated areas, it seems a bit bland in sparser regions and very pixilated at lower altitudes. This scenery "screams" for 3-D enhancement or at least for the ability to

increase the resolution to help cure some of the pixilation problems at lower altitudes. Clouds are of the same nature; nice from a distance but with the same notorious "Lego Block" appearance as other flight simulators when viewed up close. **Pro Pilot** offers three different options for weather control: surface conditions, winds aloft and clouds. The cloud option allows you to choose three levels of clouds but only three types: overcast, scattered and clear.



Pro Pilot enhances realism by making you start each plane up as you would in real-world aviation. You have to run through at least the minimums of your checklist to start the plane.

Feature Review



Scenery Complexity is controlled from the menu in three different options. You can choose to let **Pro Pilot** determine the complexity automatically, or you can set the detail levels of terrain, runways, sky, buildings, obstacles, cloud detail, etc. You can also set up an alternate menu, which provide you with the ability to toggle from your main level (higher detail) to your "alternate" level (lower detail). This can prove beneficial in retaining a decent frame rate for graphic intense areas, especially for older, slower computers.

Navigation

If you have lost your bearings in **Pro Pilot** it's not because you did not have the resources available. **Pro Pilot** not only gives you ample navigation instruments specific to each aircraft, but also gives you some different options too. It includes a fully functional GPS that even displays obstructions, intersections and Victor routes. Just toggle the GPS from the menu bar under **Views** and you're ready to do some real-time navigation like the big boys. I like **Pro Pilot**'s GPS functionality and although the display can be resized with the mouse, it would be nice if it could be even more compact, allowing you to place it on the

panel, if desired.

Now for some cool stuff! Toggle the menu and under **Airspace** | **Navigational Aids** you can set various situations that allow you to choose from either VORs, NDBs, ILS or Waypoint menus and allow you to select the Nav to stations and tracking. Example: Choose the VOR tab. Then select "GRR Grand Rapids Vor," tune it to Nav 1, then click the tab Setup VOR Tracking. Select either an inbound or outbound course, choose the radial of your choice, then select the following: adjust OBS of selected Navs, distance to/from VOR, altitude and heading, then "Go To" and you are now ready to fly the approach that you specified. If only real life could be this easy!

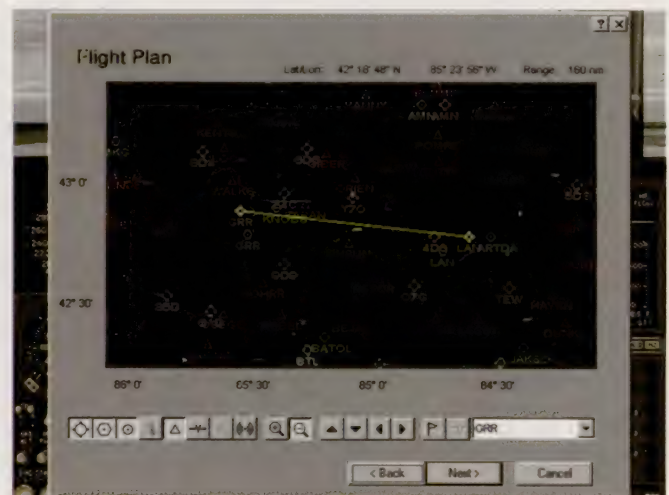
The flight planner opens up into the graphical map interface, shows your course and lets you toggle to view other VORs NDBs, ILSes, Victor routes, frequencies or fixes.

Scenery Complexity is controlled from the menu in three options. Let Pro Pilot determine the complexity automatically, set the detail levels yourself or set up an alternate menu.

Flight planner... For a cross-country flier, **Pro Pilot** has a built-in flight-planning utility that is easy to use and provides air traffic control interaction during the entire flight. Pilots also have the selection of choosing a VFR/IFR flight, departure and destination, type of aircraft, cruise/power settings, weather, etc. After these options are selected, the flight planner opens up into the graphical map interface, shows your course and lets you toggle to view other VORs NDBs, ILSes, Victor routes, frequencies or fixes. After choosing your options, the planner then shows your flight log information and begins the adventure. The flight planner is an excellent built-in feature for this program, and I especially like the graphical interface. The only negative tone I could give to it would be the lack of being able to print both the graphical map and the flight log from within the program, although the graphical portion can be viewed from within the GPS.

Flight Models

Flight models as tested from the original release produced less than pleasing results. Sierra has released two patches for **Pro Pilot** since the original release package. They may be found at [ftp://ftp.sierra.com/pub/patches/pc/](http://ftp.sierra.com/pub/patches/pc/).



The flight models were tested after the patch was applied and produced dramatic improvement for all flight models, but Sierra has a lot of serious work to do on them yet. I found the 172 to be over sensitive in most respects. The King Air seemed very hard to feather out and the approach must be planned way, way in advance—this big guy just wants to keep flying. That's nice, but not realistic. The Bonanza and Baron seem acceptable in most respects but just do not seem to be as fluid as they should. Moreover, the Citation, although fast and nimble, just doesn't seem quite right. All models seemed to suffer from an inability to taxi correctly, specifically when making tight turns, and not having taxiways available in this release makes it that much more difficult and frustrating. The good news is that Sierra is working hard to make the flight models more accurate.

Documentation

Pro Pilot's documentation is second to none. I found it very informative and thorough. You're not getting some skinny little pamphlet that has ads and phone numbers in the back, telling you where you can send your money to get a thicker book that has the information in it which you should have gotten in the first place! Between this manual and the ground school video clips that **Pro Pilot** offers, you are getting a lot of solid information. If you did not know anything about aviation at all, these two items could provide you with a tremendous amount of knowledge from basic to fairly advanced. Do I think it could replace ground schooling? No. But the manual is so well laid out that I wished I would have had it available to me as a supplemental guide to gain basic knowledge when I began flying. **Pro Pilot** also comes with two fan-fold quick-reference guides describing specific aircraft panels/instruments and

The Inside Scoop

Full Throttle magazine contacted Brian Gallardo, Sierra's Game Designer for *Pro Pilot*, for a few questions concerning the general direction of *Pro Pilot*. Here is what Brian had to say:

Full Throttle: *What are the immediate short-range goals for Pro Pilot before the next released version?*

Brian: Our immediate goals for *Pro Pilot* are to further strengthen the core product. By listening to user feedback and improving areas they would like changed, we feel we are getting that much closer to providing the ultimate PC flight simulator.

Full Throttle: *Do you expect any more patches before the next release version?*

Brian: Yes. There will be several more patches. *Pro Pilot* is a living-breathing project. It will be continually upgraded and improved.

Full Throttle: *Will there be other planes in the future?*

Brian: Yes. Other planes will be available.

Full Throttle: *What about allowing a few higher resolutions in PP, like 800 x 600?*

Brian: Absolutely, this is one of our top three priorities and will be included in the next upgrade. The other two are 3-D acceleration and taxiways.

Full Throttle: *Long term plans for Pro Pilot?*

Brian: Once our new graphic engine is in place, we can concentrate on bringing *Pro Pilot* into the next millennium. Adding more aircraft, weather effects, a scenery designer, multi-player, etc., are all areas we will be introducing in the future.

Full Throttle: *Any Tips or tricks you can share with us?*

Brian: Sure,

- a) Make sure you cycle through your views before you takeoff, this will load them into memory and reduce pausing while taking off.
- b) Remember to use fuel boost on the King Air and Citation. There is a chance the engines will not start without them.
- c) You can determine whether an ILS has a DME by listening to the Morse code identifier. Every third repeat of the code will have a higher pitched tone.
- d) When listening to ATIS, note the current barometric pressure. Be sure to calibrate your altimeter to this reading.

Pro Pilot's documentation is second to none. I found it very informative and thorough. You're not getting some skinny little pamphlet that has ads and phone numbers in the back...

keyboard functions. **Pro Pilot** does include thorough help and documentation within the program help menu.

One has to remember that this program is level one entry for **Pro Pilot**. Moreover, with that in mind and the confirmation of two patches already

On Final...

Final thoughts on Sierra's **Pro Pilot**: This is a good solid sim., although lacking in 3-D, no multiplayer, only five aircraft and the lack of some options and add-ons, as compared to Microsoft's Flight Simulator.

released and more on the way, it is obvious that Sierra is serious about improving this sim and customer support. I found Sierra more than willing to provide information and bend an ear to some suggestions I had made. I feel confident that Sierra is committed to making **Pro Pilot** a project that is never finished—meant in a good way, always striving to make it even better.

Sierra **Pro Pilot** is a sim that takes you anywhere in the United States and provides state-of-the-art

Pro Pilot
Suggested Retail Price: \$54.95
Windows 95

Sierra On-Line
3380 146th Place SE
Bellevue, WA 98102

<http://www.sierra.com>

navigation, excellent sounds and panels, two single-engine, two twin-engine and one jet aircraft. Will **Pro Pilot** ever surpass Microsoft in achieving their motto, "As Real As It Gets?" Well, I don't know, but competition is a good thing and this is one flight simulator you should keep your eye on.

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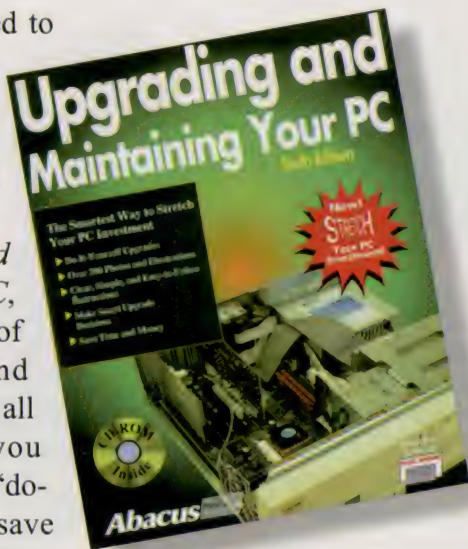


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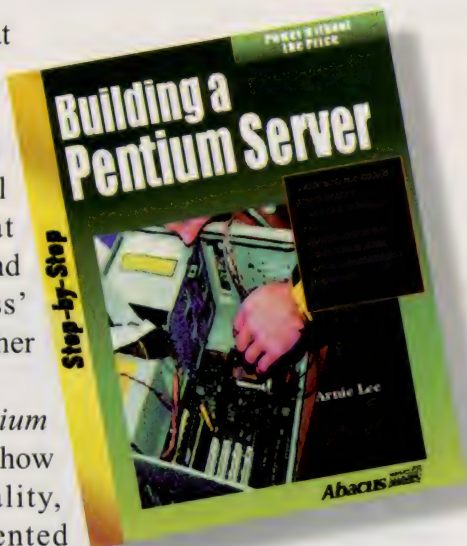


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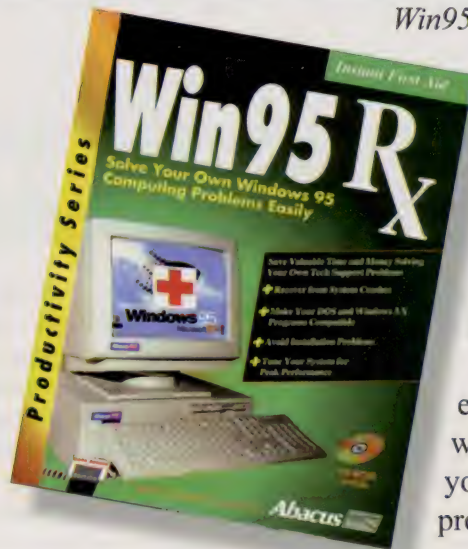
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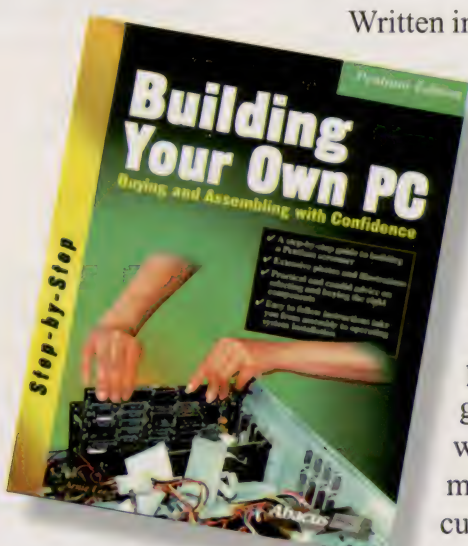


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Reviews

747 Jumbo Jet - from Alpha Software
Moving Map Instrument - by John Huidec
Tahiti Scenery - from Wilco Publishing
Geneva Scenery - from Flight World
California Adventures - from SimuTech
Dynamic scenery Utility - by Louis Sinclair

747 Jumbo Jet

By Peter James

When Alpha Software of Burlington, MA, contacted me regarding their release of a new product for flightsim, my first reaction was "Wow, finally a local company is making flightsim stuff." Then I thought to myself, "I hope it will be something to do with airliners." I scanned their Web site hoping to get a sneak peak at what they were sending me, but with no luck—I had to wait. Then I learned from a company rep. that it was called **747 Jumbo Jet**, but that's about all she knew. My interest was heightened a great deal. The Alpha Web site is a professional business software site and not related to games or flight sims as of yet. It was odd seeing such a "serious" company excited about releasing a flight sim add-on. Apparently there are flight simmers in the office!

Introduction

What I received was a nice looking CD-ROM that loaded a colorful, well-planned install screen. It had click-able buttons for aircraft, airports, a panel manager and other information. I quickly clicked on Aircraft. Then a page opened to display at least 20

747s! Each airplane had a little picture, title, description and install button. There was an option to install a unique panel for each airplane. Viewing the small pictures revealed what appeared to be one heck of a nice looking "Classic" 747. Then the panels shown were out of this world. I saw a completely scaled, photoreal 747-100 or 200 panel! It really drew a "no way" from my mouth. I had to see this to believe it.

Quick Installation

I rapidly installed all the FS98 aircraft. The CD has FS95 aircraft as well. The installation per plane took only about 5 seconds. Once this was done I decided I must wait no longer and exited the interface and went to MS Explorer. I immediately noticed the planes had indeed been added to their own directories



plane. confidence I ran FS98. Upon accessing the airplane library, I saw I was the proud owner of several 747 "Classics." Once "inside" the flight deck of the Boeing Delivery plane, I found myself staring at the fantastically rendered, highly

... I found myself staring at the fantastically rendered, highly cluttered, analog world of the 747-100. I saw a photorealistic cockpit, complete with all the accurately placed, real scaled gauges and instrumentation. It was a first for this airline pilot ...



cluttered, analog world of the 747-100. I saw a photorealistic cockpit, complete with all the accurately placed, real scaled gauges and instrumentation. It was a first for this airline pilot, as all panels until this time had been for the glass cockpit - 400 version.

There was a problem however. The panel would not display the outside world in 3-D mode using my Diamond Monster 3-D Card. In speaking with the designer of the panel on the phone, he assured me a patch was being developed for this problem. It is possible by the time you read this, a patch for 3-D will be on www.alphasoftware.com.

In any event this panel is a gem. I did not fly with it much as all my flying is done in 3-D mode, but for the time I used it, I can say it is as fantastic as the pictures show.

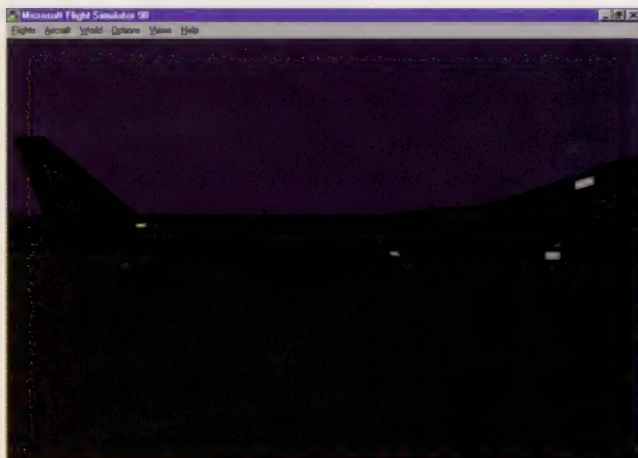
Visual models

First, the visual models are excellent. They are the first almost photorealistic airliners I have ever seen. The graphics were made from photos. The bare metal textures have a dull shine to them in 3-D. All the major bolts, handles, and rivet lines are visible! The passenger and baggage doors look very detailed. The proper number of windows exist. And, more

importantly everything is to scale. Scale is so very important to aircraft designing, and it's clear Alpha made efforts to do it right. The engines are the most detailed I have seen. They may be photographs for all I can tell.

The landing gear is at proper scale too, but does bleed through the engines slightly, depending on your spot view. Overall I found that to be the only "visual flaw" in the physical model. There are excellent flap and slat visuals. The wing tips even have the antennae sticking out of the trailing edge, for which the old 747s are famous.

The external lighting is the best I have seen, with a great strobe effect on wing tips. All running lights are bright and of realistic color. At night the plane shows off its many lights, but most importantly the cabin lighting is illuminated in a true to life, dull, sort of way. You get the impression passengers are reading or sleeping inside!



The external lighting is the best I have seen, with a great strobe effect on wing tips. All running lights are bright and of realistic color.

The engines are the most detailed I have seen...there are excellent flap and slat visuals.

First flight

My first flight was in the Boeing Demonstrator 747 (the red and white one that flew worldwide promoting the new jumbo back when I was watching new Brady Bunch episodes). Knowing it's a -100, I was prepared for a much more anemic departure compared to the energetic 747-400 I mostly fly on FS98. I departed runway 13 on a clear, calm and cool winter night. At the near empty weight I had programmed, the big jumbo accelerated... anemically. With 15 degrees of flaps set, I knew Vr would be low. I pulled back at 130kts, and the nose rose steadily up to the normal 15 degrees or so for departure at light weight. Up, up and away!

I had a positive rate of climb, but only 160kts. Hmm. I lowered the nose a little, to only 10 degrees. Well, I now accelerated towards 190kts. After the gear was up I decreased flaps to 5, then 2, 1, then up. I was able to maintain a 1500 - 2000 fpm climb rate at around 220kts.

Speed slowly crept up to the 250kt range. The amount of time this occurred was vastly different than the new 747s. But it was REALISTIC.

Based on friends, who fly real 747-100s, the performance here was accurate. I rose to 4000 feet for the downwind over Hong Kong and the mountains at Cheung Chau.

Level off and 250kts "clean cruise" was done easily in terms of stability and pitch/trim inputs. Nothing was unusual or overly sensitive. Hand flying was easy. I knew I would like these planes.

The engines are the most detailed I have seen. The landing gear is at proper scale too. The wing tips even have the antennae sticking out of the trailing edge.



Performing the low altitude turn to runway 13 poses a challenge for any flight simmer. In a 747 it's as hard as it gets. In real life it is a challenge. Maneuvering a 600,000lb jetliner at only 200 feet above rooftops requires much attention as well as coordination. I am proud to report making the turn at 150kts was not only precise but also relatively easy in this model. I rolled out only slightly off centerline and was able to gently put her down about 2000 feet down the runway.

At light weight touchdown speed was around 122kts. Reverse thrust and minimal braking was used to bring the 747 to rest in around 5500 feet. Not bad at all. I had really experienced the first 747 as I imagined it to be in real life.

Now I performed a maximum weight departure on runway 13. Vr was estimated to be near 165kts. It was. It took almost 10,000 feet to get the beast off the ground. And when rotating to 10 degrees the reaction was sluggish at best. Slowly my vertical speed nudged up to 1000 feet per minute. I was careful to retract flaps slowly. In fact I never got more than 190kts in the climb, so flaps remained in at 10

degrees as I wheeled around the mountains at 3500 feet. Eventually in level flight I sped up to 250kts and cleaned up the wings. The approach was just as easy as the light weight one, but the speed that best held the turn was

... the planes' flight models were designed to be great from the beginning ... The visual models are more detailed and photo-like than anything I've seen from a free developer.

near 170kts. Lining up on short final, my speed slowed to around 148kts, and touchdown with full flaps was around 139kts. Stopping required a longer ground run, as expected.

The 747-200F was then tested for its performance. I did notice a bit more power available, but much less than the new -400. Climb rates went up about 300-500 fpm and you could tell the difference between the two models.

In cruise flight, the jets are just as

fast as today's counterparts. For FL310 or 350 you can expect M.85 for a top speed. Normal cruise varies from M.81 to M.85. Pushing 500kts true airspeed still makes the 747 the fastest subsonic transport.

However as mentioned earlier, getting there may take a while. Plan to "step climb" on long trips. At full weights, plan a 1000 fpm or 1500 fpm climb rate at around 300 – 350 ktias. Up above 20,000 feet use M.75 for climb. Don't expect to go above FL270 in the beginning. At heavy weights, if you find your targeted airspeed can not be maintained at a constant 1000 fpm, you have gone higher than you should for that weight.

Level off for a while, obtain cruise speed and burn off fuel for an hour. Then go up a few more thousand feet. The real airlines do this, and it is

needed in FS as well. Eventually near the end of a long haul trip, you may find it easy to get all the way to 41,000 feet. Don't try to push your old 747 and you'll get the desired performance out of it.

Comments

Overall I found the 747s to be very well designed and they all perform as expected. Stability was high and coordination inputs via rudder were not needed much.

Stability on and off autopilot at high altitude was fine. There is no "funny business" with these jets. A great visual model is nice, but to combine it with good flight dynamics is a recipe for success. You will certainly experience flying the 747 with these planes.

Now for the scenery. The CD-ROM includes airports and local scenery for places like Frankfurt, Dusseldorf and Nice. The Nice area includes scenery for the "Cote D'Azur" in France. Upon



loading the scenery I found that the Nice airport was floating in the water. I tried many times to fix that. Adjusting the scenery priority in the scenery library usually will cure floating runways or inaccurate ground cover, but I could not remedy the problem. The other airports were not mislocated, and I shall tell you about them.

The frame rate on the runway for my P133 was only a 4.5 at Frankfurt. I was disappointed. My personal opinion is that scenery designers don't test their designs to run on anything less than the top of the line super computer. I know my computer is slipping down the scale of performance, but I still think we must realize not a majority of us have P200s or better.

There had to be a reason for this, so I checked out the details around the field. What you will see are airbrushed and almost photorealistic air terminals. A very nice visual indeed, and at night the windows glow from inside! The control tower and buildings are nicely presented and the taxiways have accurate lighting with perfectly scaled signs and markings.

The time and effort spent on detail is clear. I think most of you will really enjoy it. But until I get a faster machine, I won't be visiting this airport. Dusseldorf did have a frame rate of nearly 11, so I could see that not much more CPU power would result in smooth operations.

Conclusion

So we have a new commercial add-on for our flightsim libraries. **747 Jumbo Jet** has proven worthy of commercial sale. Why purchase this when you can get lots of great planes on the 'net for free? The answers are the planes' flight models were designed to be great from the beginning so there's no guess work on your part.

The visual models are more detailed and photo-like than anything I've seen from a free developer. Also,

these are the only 747-100 or 200 panels I've seen. The install off the CD-ROM is refreshingly fast and simple. You will never have to worry getting these planes and panels in your directory.

The only problem I had was the 3-D effect not working on the panel, but I know a patch is on its way any day now. I would not purchase this product if you want the airports only, but consider them an extra bonus.

The star of the show here is the Boeing 747 Classic, and I am proud to say Alpha Software has launched their new product line with something all virtual airline pilots will enjoy very much.

747 Jumbo Jet

Suggested Retail Price: \$24.95
MS FS95 or MS FS98

Alpha Software

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Burlington, MA 01803
(781) 229-2924

<http://www.alphasoftware.com>

Moving Map

By Tim Dickens

Navigation and knowing where you are at all times is of paramount importance when flying, in both the virtual and real worlds. The new **Moving Map** program offers FS98 users an extremely versatile and flexible utility, which

provides the user with accurate information on all navigation parameters. This information is presented in a resizable window, which may be transposed onto the instrument panel, providing information on the aircraft's location in relation to all airports and navigation beacons that exist in the scenery.

In addition to navigation and airport data, the aircraft's indicated

Figure 1:
The Moving Map displays all nav aids and airports



airspeed (IAS), heading, altitude and true airspeed (TAS) are shown at the top of the display (see Figure 1). Detailed information (identifier, lat./lon., bearing, altitude, distance and ETA) on each airport or navigational beacon may be obtained by simply mouse clicking on the object displayed.

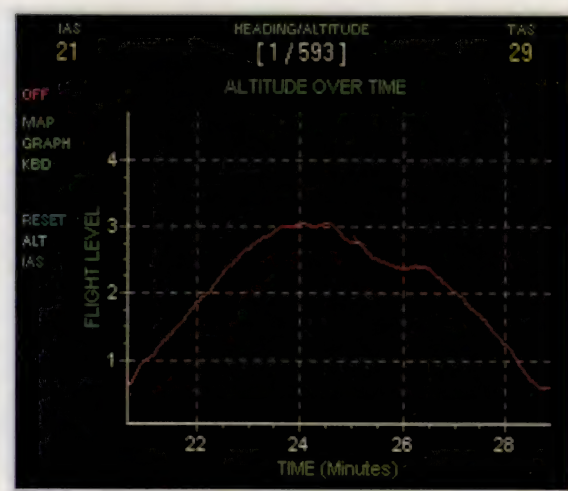
A compass display is superimposed, showing the bearing of all of these objects in relation to your aircraft. All objects are displayed relative to your heading for easy reference. As you turn the aircraft, the display follows along. The windowed display can also provide you with a graph showing your altitude over a period of time (Figure 2), a useful tool for evaluating your flight parameters.

I found this program very easy to use, and reliable. In addition to displaying the established airports and nav aids in the scenery, the MapTool program, which is included, allows you to incorporate your own waypoints, which will be displayed along with the other data. This makes the program useful as both a GPS system and a flight planner.

The scenery files you select, and any waypoints you wish to add, may be saved as a set, so that you may recreate any flight later on with one mouse click.

Moving Map is shareware, with a demonstration download available from the program's web site at <http://www.bit.net.au/~johnh/mmap/>.

Figure 2:
The Moving Map shows altitude profile of your flight.



Tahiti Scenery Adventures over French Polynesia

By Brian Howard

Just moments ago I had a drink in my hand and my toes in the sand, lounging in an immaculate white coral beach. The incessant sibilance of breaking waves was calmly massaged by the ever-present trade winds. Oops...apparently, after staying up too late last night, I fell asleep at my desk this morning while flying (virtually) through Wilco Publishing's **Tahiti Scenery—Adventures over French Polynesia**. While this scenery/adventure add-on for Microsoft's **Flight Simulator** won't leave sand in your bathing suit, it is the best virtual south sea island scenery I've yet seen, and ranks very close to the top of all the scenery I've flown.

Tahiti Scenery provides flight simulator enthusiasts all 81 of the Society Islands and Tuamotu Archipelago comprising French Polynesia, covering a total of 1.5

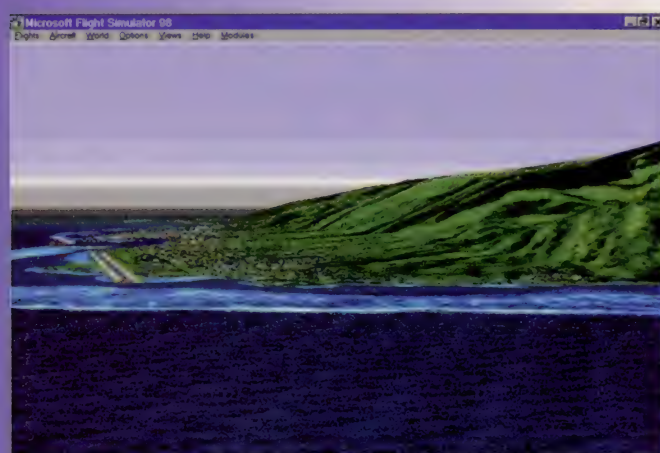
million square kilometers of the South Pacific. Magellan was the first European to view these beautiful islands, visiting in 1519. It would take almost another 250 years before Tahiti was "discovered" by Wallis, in 1767, followed by many other well-known navigators, like Captains Cook and Bligh, and later attracting artistic luminaries, like Robert Louis Stevenson, Paul Gaughin and Marlon Brando (really, Marlon Brando).

Installing **Tahiti Scenery** is as smooth as a tropical breeze. Place the CD-ROM in your drive and follow the prompts on your screen. Those of you who have installed third-party scenery before are familiar with FS's scenery library. Well, **Tahiti's** install program identifies the new scenery to **Flight Simulator**, so you don't have to manually configure the scenery library. Speaking as one who installs (and often uninstalls) a lot of scenery, this is a very nice provision of the install

Moving Map Instrument
Shareware Price: \$24.95
MS FS95 or MS FS98

John Hnidec
10 Anita Street
Yeronga 4104 Queensland
Australia

<http://www.alphasoftware.com>
e-mail: johnh@bit.net.au



interesting 3-D objects are much more important, and **Tahiti Scenery** has these in spades. The colors first struck me as I began my first Polynesian flight. The deep blues of tropical lagoons blur into jade volcanic mountains as the former reflects the latter. That's right, the water reflects the mountains rising above! A scenery effect I've not seen before. Swoop low over the beachside resorts and you can easily pick out the beach chairs and tennis court. Look up when taxiing around the Faa'a airport to see the control tower operator vigilant at his post.

Or fly out over the lagoons in search of wayward wind surfers and jet skiers (you can identify them from above by their wakes). The island positions and contours are faithful to real-world geologic data, creating a very realistic experience.

The realism isn't just in the scenery, either. **Tahiti Scenery** is also one of the best documented packages with which I've worked. Aside from the more than thirty pages of aeronautical maps and charts (provided courtesy of Service de L'Information Aeronautique), the pilot's handbook (in four languages) provides detailed information on the geologic and recent history of the major Polynesian islands. The manual will even help you configure your flight simulator for optimal performance with the Tahiti scenery.

But wait! There's more! **Tahiti Scenery—Adventures over French Polynesia** also provides four airplanes and four flight sim adventures. Installing all the planes allows you to fly a DC-10 (one of the most popular airplanes in the world) in Air Outre-Mer livery, an Air Tahiti ATR-42, a Wilco Cessna 182 seaplane and, for reaching the distant mainlands, an Air France Concorde.

The adventures, designed by real-world pilots, rank among the most interesting I've encountered. The first is also the simplest: a commercial IFR

program—one I would like to see other developers incorporate.

But a nice install routine doesn't

make or break flight simulator scenery packages. Rich colors, luxuriant foliage, finely textured landscapes and

Product Reviews

flight from one island to another. If you wish, you may assign the duties of setting instruments and radios to the virtual copilot. This option is available in all but the last adventure.

Be sure to plug in your speakers or headphones so you can hear the ATC's instructions. For background information on the islands, load the second adventure, in which you pilot a sightseeing tour for island visitors. The tour guide may also double as your copilot.

If you're not too absorbed with piloting, you may learn a thing or two as you tour Tetiaroa, Huahine, Bora Bora, Maupiti and many other isles. In the third adventure you work for a recreation coordination outfit, and must pilot your seaplane or helicopter (in FS 98) to check up on jet skiing, wind surfing, horse riding, hiking and other clients. I can't tell you much about the fourth adventure: it's top secret. As a retired intelligence agent, you operate a small Polynesian air-taxi service. French authorities charter you to pick up a client on an isolated island.

On your way there, the radio crackles and you receive further instructions... The manual provides background for each of the adventures,

plus flight details, departure and arrival locations, an abbreviated flight plan, all the frequencies you'll need along the way. A complete list of the control keys that can be used during the adventure (such as **Ctrl**+**R** to repeat the last ATC message, or **Ctrl**+**B** to locate a flying tanker when you are low on fuel) is included as well.

Tahiti Scenery—Adventures over French Polynesia is well documented and designed. Visually, it is very impressive, and the design team took the time to create a well-rounded scenery package. It is easy to install and provides helpful information about the Polynesia region and how to integrate the Wilco scenery into your **Flight Simulator** environment.

Everyone who prides themselves on flying through the best add-on scenery should have this package in his or her software library, and if you are a simmer who only buys one scenery package a year, then you should very seriously consider making this the one.

Tahiti Scenery

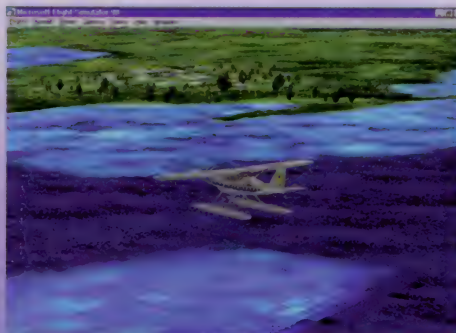
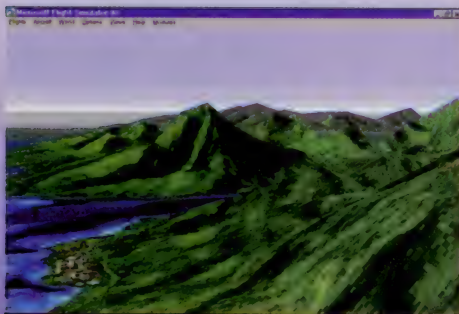
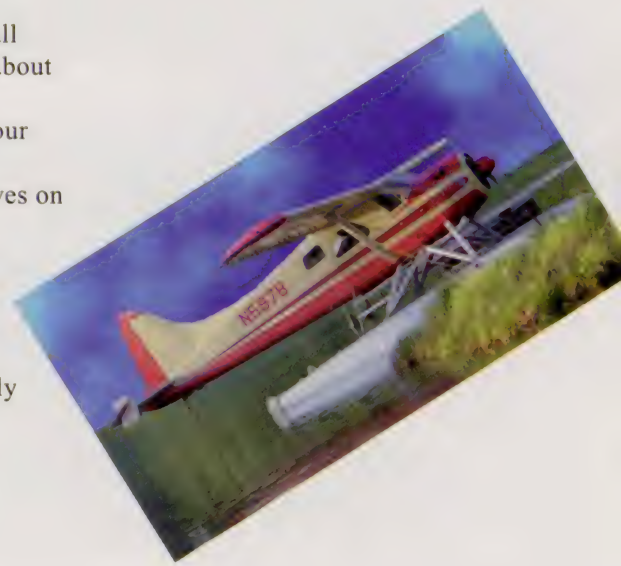
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Brussels, Belgium

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GENEVA 98

Detailed Scenery of Geneva Switzerland

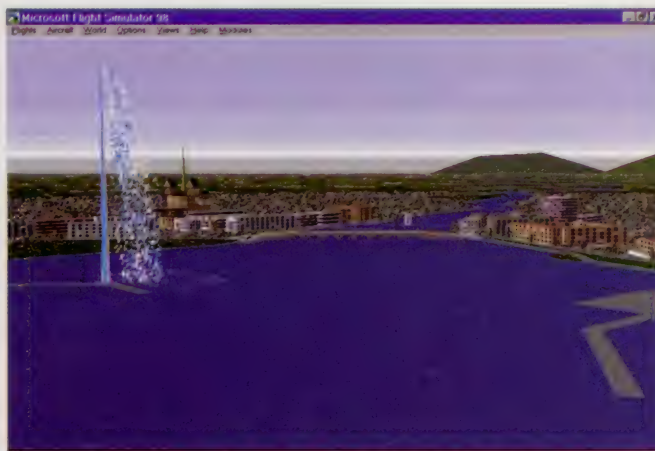
By Brian Howard

By far the most popular add-ons for **Microsoft Flight Simulator** are scenery packages. I've seen quite a few of these, ranging from the dismal to the superb. Trying to fly the poor ones so frustrates me that I want to destroy the disks to protect others from unknowingly installing them. The good ones make me wish Microsoft's default scenery could have been this good. They make virtual flying (which can be painfully boring with banal scenery) exciting, and I can hardly wait to explore the next area. FlightWorld's **Geneva 98** scenery package, designed by Geneva resident Christian Fonck, certainly belongs in the second group. I had a hard time putting it away to write this review because I always wanted to see what came next.

The **Geneva 98** package provides detailed flight simulator scenery of the Geneva, Switzerland, region and the Casablanca-Mohammed V airfield, plus four new paint schemes of the Boeing 747. The Boeing 747 is almost thirty years old, but a fresh coat of paint makes these SwissAir, Royal Air Morocco, Egypt Air and Pakistan International Air Lines commercial transports look brand new.

Installation was a breeze via FlightWorld's installation program. One first chooses FS 95 or 98 and the preferred language—the on-line user manual is available in five languages.

Next one selects the sceneries to install. **Geneva 98** has been enhanced to operate with Apollo Software's **Europe One** add-on, but it is not necessary to have both. Flight World also included a "light" version for users who are short on disk space. It is less rich in details,



*Geneva's famed Jet d'eau,
a 165 meter fountain of water.*

but can do wonders for one's frame rate. If you plan on flying to North Africa, be sure to also select the Casablanca airfield for installation. You may also choose which of the included

*Details are
precise and many.
The church
downtown
features stained-
glass windows,
and street signs
are clearly
legible.*



airplanes to install. (Note: In order to take advantage of each of the nine Flight Simulator situations Geneva 98 installs, you'll need to install all the airplanes and sceneries for both Geneva and Casablanca.) Designers may also install the Scenery Object Orienter, a utility that helps orient you with the 3-D objects in the scenery. Lastly, show the installation program where your FS is located. The installation program will take care of the rest.

The sceneries of Geneva and Casablanca are some of the most fun that I've flown, and I can explain why in one word: Details. Whether you want to see the city sights, like Geneva's famed *Jet d'eau*, a 165 meter fountain of water, or visit the locals (**Geneva 98** is populated with mechanics, stewardesses, passengers and even farm cows), Geneva 98 will meet your needs. Although not terribly expansive (I've never been to Geneva, but I expected the city to be larger than it seems here), the details are precise and many. The church downtown features stained-glass windows, and street signs are clearly legible (though it is easier to read them in slow mode than zooming past in a 747). Travelers familiar with Geneva will be able to pick out other landmarks, as well, such

Product Reviews

as the United Nations and CERN buildings. The dynamic scenery includes taxiing planes at the airport and touring automobiles on the roadways. Even the airfield marshals (the fellows waving the glowsticks) are animated, directing you to taxi and park your landed airship. And if you don't consider exploring to be part of the fun, look at the bitmaps on the CD-ROM to pinpoint the location of all the people and many other interesting scenery details. The Geneva airport offers pavement and grass runways, as well as all the navigation beacons you'll need. There's also a heliport, for fans of FS's Bell JetRanger.

The Casablanca scenery is just as precise and flying from Casablanca to Geneva is just a matter of plotting the proper course. This is easy with the included flight charts (though it has no chart for the Casablanca airport, so going the other direction is more difficult).

Users without printers may find the manual annoying, since it is only provided on-line, with the recommendation that it be printed out.

Even the airfield marshals (the fellows waving the glowsticks) are animated, directing you to taxi and park your landed airship.

But most of you probably have printers or have a friend or coworker with a printer. **Geneva 98** supports 3-D accelerator cards, MMX, and many flight peripherals, such as rudder pedals and flight sticks.

Geneva 98 is an interesting scenery package that is full of rich details. FS pilots will have much to look at during local flights, and the airport offers several nice approaches. Aspiring designers will definitely want to take a look to see what talented hands can do with 3-D scenery objects.



Geneva 98

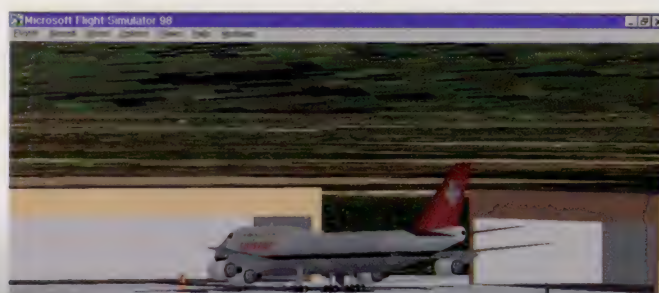
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Dynmaker

By Brian Howard

If you are flying Microsoft's flight simulator, you already have static scenery for much of the world. You may even be flying scenery enhancements that focus on particular regions or cities. Scattered throughout these still environments you may find dynamic scenery—elements that move, seemingly on their own. You might see a Cessna taxiing to depart from Chicago's Meigs field, or a fuel truck rolling toward a thirsty commercial transport at a larger airport. These dynamic elements can breathe life into scenery areas that otherwise seem like long-abandoned ghost towns.

Louis Sinclair's **Dynmaker** allows anyone who can point and click to place dynamic scenery elements within existing scenery areas. Scenery designers can easily enliven their projects and other flight sim' enthusiasts can put moving objects into their preexisting scenery. And, unlike other scenery design programs I've seen, **Dynmaker** has a very easy-to-use graphic interface that requires only a few steps to create realistic airplanes, helicopters trucks and even boats.

Before you use **Dynmaker** you'll need to have a couple other programs. Obviously, you'll need a flight simulator. You'll also need a program that records a flight path from that flight simulator. **Dynmaker** has been

optimized to directly support the **FSASM Flight Data Recorder Software** (available for download on the Internet at www.halcyon.com/zof/fsasm.html). Other programs may be used for this, but the resulting files may need to be "tweaked" before they can be used with **Dynmaker**.

The first step to create moving planes, trucks and boats is recording a flight path in your flight simulator. This is the same path your dynamic scenery element will follow. Each element (automobile, boat or plane) must have its own path in the scenery. You may

Dynmaker's program window.

You may view the loaded path(s) from above or in a 3-D perspective view. The latter allows you to see altitude information as well as the x-y dimensions. You can also see the varying altitude of the path in the altitude profile, located at the bottom of the program window. This altitude profile is a graph, measuring altitude at unique times through the path. The program options give you full control over the values of this graph.

Dynmaker's floating toolbar may be positioned wherever it is most comfortable for you. It offers single-click access to the most-used commands.

Once a path or several are loaded in **Dynmaker**, select the vehicle that will travel each path. If you choose an airplane you can paint it however you like, using up to five colors (this is limited under FS98, which uses many

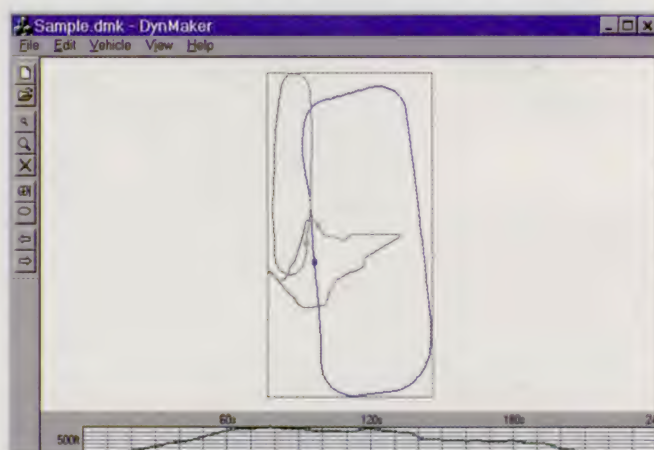
textured aircraft models). You can also control how FS recognizes the dynamic scenery. This ability allows you to turn individual dynamic scenery elements on

*If you can connect to the Internet, download
Dynmaker right now from the Internet. Set your
browser to*

[ftp.visi.com/users/rundio/Dynmaker/Install.Exe](ftp://visi.com/users/rundio/Dynmaker/Install.Exe).

not, for example, record a taxi/take-off path and have several planes follow in a queue within the same flight path. After recording a path, load it into

*Three dynamic
object paths have
been opened in
Dynmaker's
program window.
The graph at the
bottom charts the
altitude of the
selected
(rightmost) path.*



*Dynmaker is currently freeware,
and at that price, this is a must
have flight simulator accessory for
everyone who has any interest in
scenery design*

or off in FS. You may even determine the minimum scenery density setting needed in FS to display the moving elements. **Dynmaker** can also edit the vehicle paths; for example, one may turn an overlapping path into a complete loop to simulate touch-and-go landing passes. Lastly, compile a .BGL scenery file (by simply clicking **File | Create .BGL File...**) and place the new .BGL into the directory of the scenery area with which you will use it. Next time you enter that scenery area it will be populated with pilots and drivers.

This deceptively simple program is actually a very powerful tool. It is a must-have for designers, and casual users can also enjoy using it to add dynamic elements to their favorite scenery. Designers will find several other useful features in **Dynmaker**. For instance, users may export data into the **Airport and Scenery Designer** or **SCBuild** programs to view the dynamic paths in the context of other scenery elements. Users familiar with **SCASM** will appreciate the ability to save data as **SCASM** source code, as well as the other **SCASM**-related functions of **Dynmaker**. The Information dialogue box offers such helpful information as the size of the area covered by the scenery, the Latitude/Longitude range of the area, the altitude range, the length of the path and the time that elapses during a single pass through the path. Users with an imagination can take advantage of **Dynmaker** also. Ever

seen a sailboat perform a touch and go, its billowing sails carrying it into the ether? Mr. Sinclair's sample files illustrate each step of the creation process, and are great for practicing with **Dynmaker**.

Dynmaker is currently freeware, and at that price, this is a must have flight simulator accessory for everyone who has any interest in scenery design. It is very easy to use and you can see the results immediately. Just move the new .BGL

into the proper scenery directory, load flight simulator and go to that scenery area. Though one needs Flight Simulator version 6.0 or 6.1 (a.k.a., 95 or 98) to record a flight path, the finished dynamic sceneries can be used with these versions and 5.1. It's one of the most user-friendly utilities you will ever find.

Dynmaker
Freeware
MS FS95 or MS FS98

Louis Sinclair

<ftp://ftp.visi.com/users/rundio/>
e-mail: rundio@visi.com

California Adventure Collection

By Brian Howard

Simulations exist to recreate actual experience as accurately as possible. And PC based flight simulators, in particular, have made great strides toward this accuracy.

But sitting in a virtual cockpit, sometimes I still feel much more like a passenger than a pilot. Of course I don't expect a PC software program to recreate the smells of oil and gas, roaring throaty engine noise and the stomach contorting vibrations of an actual small plane. But some small details can make a big difference—which is what most excited me about SimuTech Corporation's **California Adventure Collection**. The program convincingly replicates communication between pilots and controllers.

In brief, the **California Adventure Collection** is an add-on for Microsoft's **Flight Simulator** (both the 95 and 98 versions—I tested it with FS98). The 740 .wav sound files in **California Adventure Collection** allow you to listen to the clearances that will get you up and down safely in the heavily trafficked California skies. It offers two detailed flights, more than a dozen airport approaches, three airplanes, a short manual (16 pages) and twenty approach plates.

Cessna 51367: Oakland clearance, Roger. After departure fly runway heading, maintain VFR at or below one thousand five hundred, radar vectors to Concord, Buchanan. Departure frequency will be one-three-five-point-four and squawk zero-three-two-two.

Product Reviews

Installation was fast and easy in my 166MHz-based computer. Just run the CD-ROM's setup program and point out the location of your FS files. The setup program creates two directories within the main FS folder, totaling about 30 megabytes.

The documentation is probably the first weakpoint you'll encounter. Unless you are an actual pilot, the manual will leave you wanting more information. It contains some notes and tips for flying, but these are either very basic or assume you already have a strong base of pilot's knowledge.

Speaking with Tim Freriks of SimuTech, I learned that the SimuTech team are all pilots, and they design their software for pilots, so this isn't a flaw as much as something one should be aware of. The best of the printed materials are the approach plates, which are very useful once you learn how to read them.

The included airplanes are an air-rescue Cessna 414-A, a Cessna Skylane 182R RG (slightly different than FS's default Cessna) and a DH Dash 8-300 (a twin-engine turbo-prop). It's always nice to have some extra planes, but the adventures don't take advantage of them.

The Skylane 182R RG is the plane you'll fly in most of the adventures; the other two are thrown in for kicks.

When arriving at your destination airport, the Approach controller will give you the radial and runway you'll need to use to safely reach the ground.

November four three Whiskey: turn right heading one-three-zero. Descend and maintain four thousand, five hundred. Join localizer, you are cleared runway 16 right approach.

The best way to experience the potential of **California Adventure Collection** is to load one of the full flights, either from Oakland to Concord or San Francisco to Los Angeles. Click **Flight | Adventure** in the FS menu bar and select your flight from the list of adventures. When the adventure is fully loaded, you'll be sitting in your plane on the tarmac. **California Adventure Collection** then asks you which options you wish enabled. For the first flight, it is a good idea to let **California Adventure Collection** automatically



change frequencies for you. You may also disable the push-to-talk feature, which means you don't have to press **Ctrl+K** to reply to every message from the tower.

After saying Yes or No to a couple more options, you'll be ready to contact the ground controller for clearance to taxi. This controller tells you from which runway you should depart. Once in position, contact the tower for clearance to take off. Once airborne, listen to the Departure controller for the altitude and route you should take away from the airport.

When arriving at your destination airport, the Approach controller will give you the radial and runway you'll need to use to safely reach the ground.

All of this is accomplished aurally with almost 750 .wav sound files. With a soundcard and a pair of headphones or speakers, you hear the commands from the controllers, and even the chatter of other pilots sharing your airspace.

You may have these directions appear on the screen as well as in your headphones. **California Adventure Collection** will even post reminding tips if you so desire. One of the most useful keystrokes is **Ctrl+R**, which asks the controller to repeat the last instruction.

It's amazing how much sound can improve the realism of an experience.

When the adventure is fully loaded, you'll be sitting in your plane on the tarmac.



The chatter is taken from actual pilot-speak, giving you the real sounds of wearing headphones in the cockpit. At the end of a successfully completed flight you'll be rated by how well you followed the controllers' directions. With all this help, you'll have no excuses for not making perfect scores, right? But it's not as easy as it seems.

The approach adventures into California airfields contain the same audio cues for guiding you into the proper approach for the virtual airports.

This package has the potential to be a must-have add-on. As mentioned earlier, the documentation is a bit weak. Non-pilots will need more help with aviation terms and flight navigation than the manual offers, not to mention identifying the various beeps, clicks, tones and other cabin alerts. More seriously, the program itself sometimes behaved more like a naughty beta than a completed project. Several of the adventures I loaded experienced some

sort of flaw or another. These ranged from the minor but annoying (the sound files didn't always load) to the catastrophic (once the autopilot misbehaved, sending me into a nasty, irrecoverable spin).

Overall, this is a good idea and introduces the flight sim enthusiast to a New World of realism. The future progression of this program, and others like it, will be an exciting addition to virtual aviation.



California Adventure Collection
Suggested Retail Price: \$29.95
MS FS95 or MS FS98

SimuTech Corporation
PO Box 274112
Tampa, FL 33688

813-933-0610 (phone)
813-726-0088 (fax)

e-mail: info@telsim.com
linked thru: www.flightsim.com



WebWatch

News & Interesting Sites On The Net

by Adam Howe

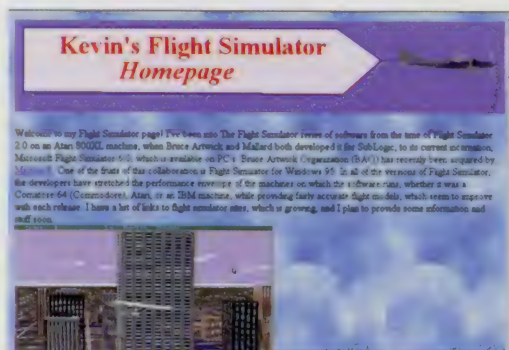
One of the nicest things about Microsoft *Flight Simulator*, besides the realism, is the ability to add custom aircraft, scenery, panels, sounds, adventures and much more. And thanks to the World Wide Web, even the flight sim beginner can find almost anything he wants for flight simulation on the 'net. But the net can be confusing for most surfers, and it is easy to get lost. This column will highlight a few hangars on the Web that are filled with FS tools and accessories.

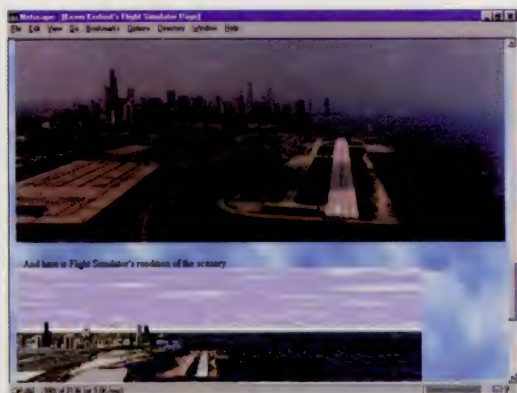
A complete history of Flight Simulator

Our first trip takes us to a page with a complete history of **Flight Simulator** (spicerack.sr.unh.edu/~kevink/fltsim.html). Most of us take today's flight sim for granted. These pages take you through its evolution. It contains good, but not too detailed, graphics, which reduces download time. The layout of the site is clear and easy to follow. Even though the site lacks

panels, sounds and third-party programs, it is still a great page for the history of flight sim and for picking up a few airplanes. This site's links (www.swannet.com.au/~moby/hangar/) could be updated, but it does belong to the Flight Sim WebRing. Be sure to check out the comparison of FS's Meigs Field to the real thing.

Find a complete history of Flight Simulator at
spicerack.sr.unh.edu/~kevink/fltsim.html





*Compare FS's Meigs Field
to the real thing at
[www.swannet.com.au/
~moby/hangar/](http://www.swannet.com.au/~moby/hangar/)*

Extra aircraft and scenery

The next stop on our tour brings us to a page that is ready to help you take off with extra aircraft and scenery. This page (ourworld.compuserve.com/homepages/cranenburgh/) contains documents and instructions on how to use various third-party programs like the Flight Shop Converters and other FS tools. The layout is good with clear graphics. This is a good source for aircraft, scenery and sounds, and one of the best for documentation and instructions. I found the access time good, and the site is a member of the Flight Sim WebRing.

Panels and scenery

For our third arrival, we touchdown at a site specializing in panels and scenery (www.simflight.com/mikem/index.html). Complete with FS98 panels, this site is a must-visit for any "simmer" looking for add-ons to FS. The easy-to-follow layout with decent graphics makes this site pop right up with any internet connection and keeps you interested. This is a good one to bookmark with its access to the Flight Sim WebRing.

A journey around the FS Web community

The fourth destination on our journey around the FS Web community is a very large site (www.geocities.com/TimesSquare/Dungeon/4464/index.html). The lack of graphics is made up for in content. This site has a very extensive list of aircraft and scenery and a good selection of panels, as well as an assortment of FS utilities and third-party programs. The length and decent layout of the page does not influence the access time. This site is more of an archive site with documentation and files dating back two to three years. If there is a specific plane you want (or need) check the archives!



*Find extra aircraft and scenery at
[ourworld.compuserve.com/homepages/
cranenburgh/](http://ourworld.compuserve.com/homepages/cranenburgh/)*

FS adventures

Our lay over at the fifth stop introduces us to an interesting site full of adventures. Though most of us never get tired of flying around in the virtual world, some pilots do. This site can bring a welcome change of pace to the flying experience with FS adventures—and plenty of them! With a nice layout and good graphics, it is easy to locate the scenery and the extensive list of adventures.

More sites to check out

For those of you who have not burned out your modem and are always looking for more, check out some of these sites, and be prepared to download!

**[www.geocities.com/
CapeCanaveral/Lab/7109/](http://www.geocities.com/CapeCanaveral/Lab/7109/)**

This site features a good selection of rare aircraft, with good graphics and an easy-to-follow layout. I found the access time to be a bit sluggish, but individual servers may vary.

e-flight.com/e-flight/

This decent page has a few aircraft and some FS utilities to help your "simming."

www.milenium.com/~ferdy/

Offering varied selection of aircraft and panels, this nicely laid out page makes finding what you want all the easier.

**[www.synflux.com.au/
~lwallace/](http://www.synflux.com.au/~lwallace/)**

This is a great place to find Australian scenery to add to FS, as well as a few planes of various types with four panels ready to download.

fsgenesis.com

The home of Justin Tyme, a renowned scenery designer, is a great place to rest and learn. Justin has taken the time to set up his homepage in a very orderly manner with good graphics. His collection of personal scenery, including Delmarva, Pennsylvania, and the latest West Virginia scenery, adds a lot to the page. The collection of FS files to download and the links page make the FS Genesis a shoe-in for a bookmark.

www.geocities.com/ CapeCanaveral/8714/

This page has a great selection of larger aircraft. A lot of repaints make up a bulk of them, but it is definitely worth checking out. The background was confusing and caused difficulty when reading the text in the foreground, but the selection of aircraft still makes it worth a visit.

Final note

As most of you are aware, the converter from Microsoft is required by most of these aircraft and can be downloaded from almost any of the above sites. If you have a site that you feel should be brought to the attention of the Flight Simulator community, please drop me a line at adam@abacuspub.com. Feel free to post comments, questions, nominations and reasons why you like them, and I'll do my best to get them into the next issue. Until next time: "This is your Captain speaking, please fasten your seat belt and return your trays to their upright position. We are now approaching our destination and thank you for flying with *Full Throttle* magazine."

Selected Aviation Acronyms

AFD - Airport & Facility Directory - a printed document containing airports and airport-related data that are pertinent for the pilot. It contains runway information (length, surface, orientation, etc.); types and frequencies of airport navigation and communication equipment; and fuel and service availability.

ASL - Above Sea Level - the vertical distance of an aircraft above MSL.

ATP - Air Transport Pilot - an individual who is approved to fly as pilot in command of an airline aircraft.

CAS - Calibrated Air Speed - the indicated airspeed adjusted for instrument variations and errors

CFI - Certified Flight Instructor - an individual who is approved by the FAA to teach flying in the U.S.

CG - Center of Gravity - an imaginary point at which the lateral, longitudinal, vertical axes of an aircraft would balance depending on the load of the aircraft.

FAR - Federal Aviation Regulations - the rules and laws pertaining to the operation of aviation-related activities including aircraft, maintenance, airports, navigation systems, pilots and flight schools.

FBO - Fixed Based Operator - an airport-based firm which refuels, repairs and maintains planes. This firm may also provide other services such as flight training or plane-for-hire.

GMT - Greenwich Mean Time - also known as UTC and Zulu time, is the time in Greenwich, England which lies along the 0 meridian. GMT or UTC is used to coordinate departure and arrival times which often span time zones.

GPS - Global Positioning System - a means of navigation based on the reception of satellite signals.

HSI - Horizontal Situation Indicator - an instrument which combines the functions of a compass and VOR or ILS instrument.

IAP - Instrument Approach Procedure - a procedure which specifies the route and altitude to follow when approaching an airport under instrument conditions.

IAP - Instrument Approach Plates - a printed chart which describes the standard procedures for approach to landing at an airport under instrument conditions.

IFR - Instrument Flight Rules - the set of FAA rules which a pilot must follow when flying an aircraft with complete coordination with air traffic control.

ILS - Instrument Landing System - a means of navigating to the vicinity of an airport runway using electronic instruments. This positions the aircraft at the proper alignment and altitude for subsequent landing.

METAR - Meteorological Report - hourly weather reports for a specific airport and formatted in a standard format.

MSL - Mean Sea Level - the average level of the ocean which represents the reference point for other altitude measurements.

NDB - Non-Direction Beacon - a means of navigation based on the reception of low frequency signals - often AM radio stations.

OBS - Omni Bearing Selector - the dial on a VOR instrument used to specify the course

RVR - Runway Visual Range - the distance which a pilot is able to see on approach to a runway.

TAS - True Air Speed - the IAS adjusted for temperature and pressure

VFR - Visual Flight Rules - the set of FAA rules which a pilot must follow when flying an aircraft with minimal coordination with air traffic control.

VOR - Very high frequency Omni Range - a means of navigation based on the reception of VHF signals from a fixed based site.



We Fly the World!

Microsoft Flight Simulator © 5.1, 6.0 and FS98 add-ons



Airport & Scenery Designer

This is the choice of "pros" worldwide, yet easy enough for beginners to use. Use the Wizard to create an airport in 4 clicks and fly from it in under a minute!

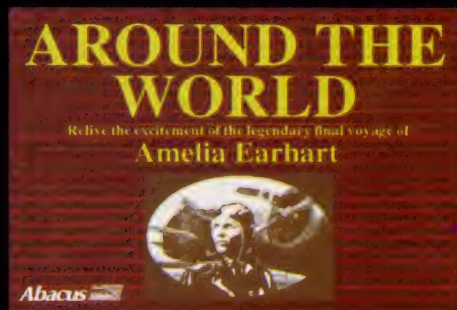
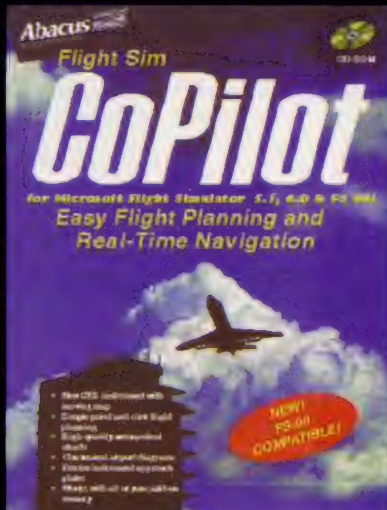
Visual design lets you add complex runways, realistic taxiways, winding rivers, super highways and roads, authentic hangars, colorful buildings, detailed taxiways and preview changes on the screen.

ASD is now FS-98 compatible. \$49.95 US

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Step into the cockpit of any of the 25+ planes that span a 50 year period of Naval aviation. All planes are designed to exacting flight models and authentic paint schemes. Available October \$39.95 US

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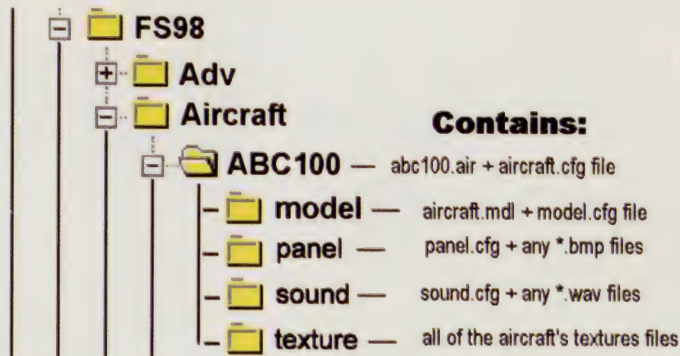
5370 52nd Street SE
Grand Rapids, MI 49512
(616) 698-0330

Continued from page 15

worth it. This self-extracting file will setup the converter in your FS98 directory and provide you with the ability to convert aircraft and adventures produced by **Flight Simulator Flight Shop**. It also incorporates a patch of the FS98 executable file that will allow larger scenery memory capability.

Operation of the converter is simple and self-explanatory within the program, so I will not elaborate on that here. What is important to know is how to use the converted aircraft files it creates. Unlike the FS95 converter, the Aafconv program for FS98 installs the aircraft files thoroughly into the FS98\Aircraft subdirectory structure. A brief review of the new aircraft directory format is important first. One big improvement in FS98 is the way it allocates files for aircraft, panels and sounds. Unlike previous versions, each aircraft has its own subdirectory under the main FS98\Aircraft folder, with all of the relevant panel and sound files organized within subdirectories under the specific aircraft. This means that any appropriate set of panels and sounds may be applied to individual aircraft, rather than just by the type of aircraft (prop, jet, etc.) as in previous versions of Flight Simulator. Quite a few FS98 aircraft have appeared in both commercial packages and for download on the internet. If the author of the aircraft is thoughtful, thorough and well organized, all of the files will already be distributed into the proper subdirectory file structure for you, so that you can just move the new aircraft folder into the FS98\Aircraft directory, select your plane and take off. On the other hand, if the author is about as organized as a fire drill in a crowded restaurant (which has been the case with some of the aircraft I have downloaded), it is good to know the proper file distribution. Here is an example for a new aircraft ABC100:

The aircraft will contain .bmp files only if there is a custom panel, and .wav files if there are custom sounds. More detailed articles on how to create new panels and sounds, as well as some advanced tips on manipulating these files, will be in our next issue. For now, we will concentrate on how to install the aircraft, sounds and panels and their related files. Hopefully, this will give



you trouble-free operation by pointing out some common misunderstandings and installation enigmas.

Sounds

The Aafconv program is relatively intuitive, but it is far from psychic. So many different types of aircraft have been produced, with such a variety of flight dynamics and related coding, that the converter can not always distinguish between a turbo-prop aircraft and a jet aircraft, for example. The simple and inflexible rule here is that prop aircraft can not use jet aircraft sounds (.wav files) and vice versa. When the Aafconv program converts an aircraft, it assigns a type of sound, *i.e.*, prop/jet, according to what it believes is the type of aircraft. But it will often interpret the coding for a turbo-prop aircraft as a jet, for example, and assign a jet sound to the new converted aircraft in the configuration file, found in the Sound subdirectory. It usually uses the sound for the Learjet. Therefore, because of

the simple and inflexible rule, when you go to fly your brand new shiny aircraft, you will hear no sound, and immediately come to the conclusion that this hedgehopper is somehow defective. Probably this is not the case. The problem is most likely a misidentification in the sound.cfg configuration file. But this is very easy to deal with. Go to the aircraft's Sound

subdirectory and double-click on the Sound.cfg file. These are simple text files, which will open in either Wordpad or Notepad. Take a look at the very top. It probably says "alias=lear45/sound." Change this line to point to a prop aircraft, like this

"alias=c182/sound," the sound configuration for the Cessna 182 prop. FS98 can use the "alias" command to use sound and panel files in different aircraft subdirectories, to eliminate the need to duplicate sound and panel files in each aircraft folder and take up your precious disk space.

There are more possibilities for creating and assigning new sounds that we will discuss in future issues, as this subject requires more detailed attention. Special turbo-prop, conventional prop and jet sounds can be created and configured to suit your needs. If you have already downloaded and converted an aircraft which has a special set of .wav files and a Sound.cfg file that work for that aircraft, and you want to use it for new aircraft of the same type (prop or jet), you can do so in the same way by pointing to that sound using the alias command. Make sure you use the same name as outlined in the special Sound.cfg file you want to use.

A few last words on sound: Some users may experience a stuttering effect



from some of the sounds, particularly the sound from the flaps operating. This can be caused by a glitch between the hardware, *i.e.*, game port or even video card, and the software. This can generally be corrected by making a small modification to the FS98.cfg file in the main FS98 directory. Locate the [SOUND] portion of the file and change the channels and SamplesPerSec parameters to read Channels=1 SamplesPerSec=11025. You will lose your stereo sound capability, but you will also lose the stuttering.

Panels

The ability for the user to design and install new panels easily is another advanced feature in FS98. Like the sound files, special panels may be assigned to each individual aircraft. In the past several months, a wealth of new panels have appeared on the internet. A good site to find them all in one place is [ftp://wings.ark.com/wings/fs98/panels/index.html](http://wings.ark.com/wings/fs98/panels/index.html). Again, adding new panels (or even multiple panels) is incredibly easy, as long as you follow a few simple but inflexible rules. If a panel is not installed correctly, it may result in an error when trying to load the aircraft, or the aircraft may not show up at all in the FS98 Aircraft | Select Aircraft... menu. A brief understanding of how FS98 utilizes panels is a good idea at this point.

FS98 has the ability to use any panel that is installed as a subdirectory of the particular aircraft, *as long as the name of the subdirectory starts with the word "panel."* If the name of the new folder does not start with the word "Panel," FS98 will not be able to find it and you will get an error message when trying to load the aircraft with the new panel.

So as an example, if you have a custom panel called "ABC100" for the Learjet, create a new folder under the FS98\Aircraft\Lear45 folder and name it "Panel.ABC100." That is step one.

FS98 directs the aircraft to a particular panel via the aircraft.cfg file inside the main FS98\Aircraft\Lear45 folder. The second step is to create a separate instance of the aircraft, which will appear separately in the FS98 Aircraft menu, with the custom panel. To do this, open the aircraft.cfg file and copy the text:

```
[fltsim.0]
title=Learjet 45
sim=Lear45
model=
panel=
sound=
texture=
checklists=Lear45_check
```

Paste and modify the text to read:

```
[fltsim.1]
title=Learjet 45 with ABC100
Panel
sim=Lear45
model=
panel=ABC100
sound=
texture=
checklists=Lear45_check
```

Creating a new column of text called "fltsim.1" creates a new entry in the FS98 Aircraft | Select Aircraft... menu, this time pointing to the new panel. It is important to modify the title so that you can tell which one is which. Otherwise, you will see two identical entries in the Aircraft menu. You do not type in "Panel=Panel.ABC100," like the name of the folder you created, just "ABC100."

The first entry in the file is [fltsim.0]. If the panel that entry points to is not set up properly for any reason (like an incorrectly formatted Panel.cfg file) the entire aircraft will not even show up in the FS98 Aircraft | Select Aircraft... menu. Nor will the second instance you created with the new panel. It will be as if the aircraft does not even exist. If this happens when you install a new aircraft, that is the first

place to look.

This is how panels work in FS98. As far as I know, you can add as many panels as you like to any aircraft (as long as you don't mind several entries in the Aircraft menu for the same plane).

Often a new aircraft that you have downloaded will not come with its own custom panel. In this case, a panel is usually assigned via the Panel.cfg file, found in the aircraft's panel directory, using the alias= command like the sound files. For example, a new jet aircraft may specify the Learjet panel. The top of the Panel.cfg file will contain the text:

```
[fltsim]
alias=Lear45\panel
```

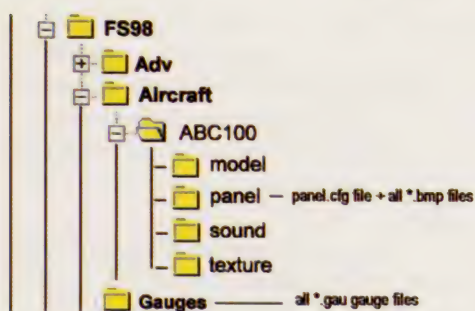
That is all the text in the file. You could also direct it to use one of the panels that the Aafconv program installed into your FS98\Aircraft folder, under a subdirectory called FSFSConv. There are several panels in there, mostly almost identical to the default aircraft panels. For example, if you have a twin prop aircraft, and want to use the panel called Panel.recip.fg.2 in that subdirectory, you would go to your new aircraft's panel subdirectory, open the Panel.cfg file, and make the first two lines read:

```
[fltsim]
alias=FSFSConv\panel.Recip.fg.2
```

In this case, you must use the full name Panel.recip.fg.2, not just recip.fg.2.

A further note on installing new panels: They will come with custom gauges (more often than not) and .bmp image files. Here is the proper file distribution for a custom panel intended for the ABC100 aircraft:

Virtual Hanger



*Figure 1
First go to
Options |
Preferences...
and enable the
advanced
weather dialog*

This new panel format offers you a tremendous amount of flexibility, allowing you to customize each aircraft in your library. As far as I know, there is no limit to the number of panels that can be applied to the different aircraft available to you (depending on how much hard drive space you have). However, when you get up to 50+ aircraft and panels in your directories, like I have, you may find these things somewhat unmanageable. There is an excellent panel manager available from Chuck Dome, one of the veteran aces in flight simulation. If you have access to the internet, you can find it on his web page at <http://home.att.net/~chdome>.

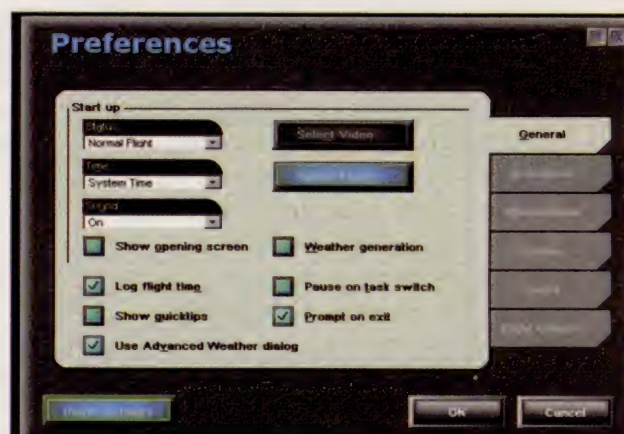
Weather Generator

Advanced weather options are available in **FS98**, which will allow you to make very precise adjustments to your flying environment. To take full advantage of these features, you must first go to **Options | Preferences...** and enable the advanced weather dialog box (see Figure 1 above right).

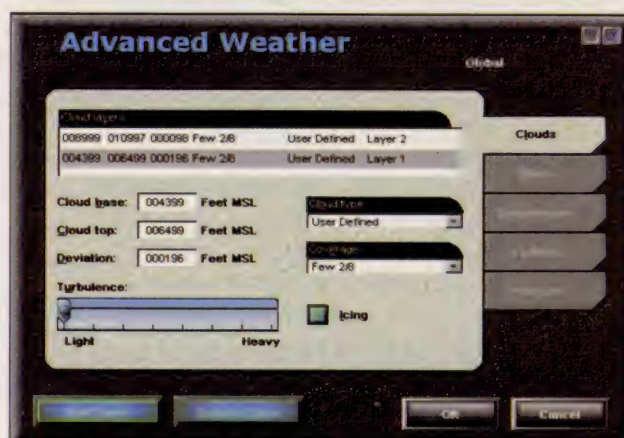
Then go to **World | Weather** and make use of the advanced features incorporated here (see Figure 2 above right).

You can set up multiple cloud layers, take control of the wind, and set barometric pressure and temperature. Also, the haze/visibility options here are much more extensive than in the standard weather menu.

A program is available on the internet which will enhance your



*Figure 2
Then go to World |
Weather and use
its advanced
features*



weather options in FS98. FSClouds Pro will add new cloud textures, generate the weather situation you specify and launch FS98 from a control applet. You can find information on **FS Clouds Pro** at <http://www.flight1.com>.

A New Set Of Views

Flight Simulator 98 offers new options that allow you to utilize a myriad of different views, through windows, which you may control in a variety of ways. Windows may now be “undocked,” or released from their normal confines, and moved to the location of your choice by simply right-clicking on the respective window and selecting **Undock Window**. So you can have, for example, the normal forward view over the instrument panel in one window, and simultaneously open another “cockpit view” at a different

angle of view, undock the window, and place it in a convenient location. The same can be done with map view, spot view, etc. This can be handy in many different situations. To enable a better view over the instrument panel, you can pan down to get a better perspective during landing, e.g. This can be accomplished by pressing **(Shift) + (Enter)**. Panning back up is **(Shift) + (Backspace)**. So you can “raise or lower the seat” at any time. Also, many of the new panels offer additional instrumentation and controls, such as the radio stack, throttles, etc., via a separate view window, which may be called by a special instrument switch or from the **Views | Instrument panel** menu. If you have not experimented with these different view options, I urge you to do so. They can enhance your flying experience in many different ways.



Setting Up Your Preferences

Have you ever gotten everything set up just the way you want? Panel/cockpit view sized just right, instruments/radios set, weather and visibility the way you want it, and then when you boot up FS98 the next time, everything is all screwed up again? That is because you did not save your flight with all of your preferences set the way you want. FS98 *does not* save all of these parameters in the FS98.cfg file every time you exit. The only things it really retains are the panel dimensions and the assignments/sensitivities you have specified in **Options | Special Controls** for your joystick or yoke. That's about it. Everything else really needs to be saved by you as a situation (flight) for use later.

This is simple to do at any time. Just make sure you have everything defined, sized, adjusted and tweaked the way you want, then hit the semi-colon ';' key, and the Save Flight menu will come up on the screen. If you are a dedicated mouser (like me), go to **Flights | Save Flight...** The same menu will come up. You must give the flight a name of your choice. You can also describe all of the parameters you have set, in case you would like a variety of different weather or other options available.

Here is a suggested checklist for a startup flight:



Remember that many of your panel instruments are inactive when the engines are off

Phoenetic Alphabet

A	alpha
B	bravo
C	charlie
D	delta
E	echo
F	foxtrot
G	golf
H	hotel
I	india
J	julie
K	kilo
L	lima
M	mike
N	november
O	oscar
P	papa
Q	quebec
R	romeo
S	sierra
T	tango
U	uniform
V	victor
W	whiskey
X	xray
Y	yankee
Z	zulu

Conversions

Statute Mile (SM)

5280 feet

Nautical Mile (NM)

6076.115 feet

Kilometer (KM)

3280.8 feet

To convert statute miles to nautical miles

SM x .87 = NM

To convert kilometers to nautical miles

KM x .62 = NM

Continued from page 27

Let's review a little bit about these parameters since careful attention here can make a great deal of difference in frame rates and available memory space. The upper left boxes labeled "Area" determine Complexity, Priority, and Range. The Complexity parameter determines at what complexity setting in **Flight Simulator** the region will appear. Priority is something I have never found the need to fiddle with, so for now we will just leave it alone. The Area Range determines when the object will be loaded into memory. Here is where many new designers get into trouble right off the bat. ASD always sets this parameter to the maximum of 255 km. This is excessive in almost all cases and scenarios. If a region has an Area Range of 255 km, it means it will load into memory anytime the plane is within 255 km of it. If all regions are set to load into memory at 255 km, you can see how quickly the 256 kb (in FS5.1 and FS95) or 512 kb (FS98) memory buffer will fill up. Once the memory buffer limit is reached no more objects can appear. In addition, if it is loaded into memory it is being processed, regardless of whether it is visible or not. This can have an unnecessarily adverse impact on frame rates, in some cases a considerable

impact. Therefore, we want to keep this Area Range parameter at a reasonable value.

This will vary according to the region type, so I will list them and the values I use. Feel free to adjust these according to your own preferences and situation:

River = 50 km
Lake = 50 km
Freeway = 25 km
Highway = 25 km
Road = 25 km
Island = 40 km
City = 40 km
Railway = 25 km
Coast = 255 km
Mountain = 40 km
Other = 40 km

These are all the Area Ranges for all the region types. Again, Area Range determines when the region is *loaded into memory*. You will also find under the Visibility tab a Set Visible Range parameter. This corresponds to the SCASM V1 parameter that determines *when the region (object) will appear*. You can see that an object may be loaded into memory but not actually appear. It may be advantageous to "lead" a region by having it load into memory a kilometer or two before it actually appears, in which case you

could set the Visible Range two km lower than the Area Range. Keep in mind that the Area Range uses kilometers, while Set Visible Range uses meters. Therefore, if you have your River Area Range set to 50 Km, you might set the Visible Range to 48000.

Once you set each region to the desired default parameters, you want to click the **Apply** button to apply the new parameters to your map. All the parameters we just set up are global and as such will apply to any map you open in ASD.

Map Properties

Now let us move over to the **Edit** menu and set up parameters specific to the map you are working with. Pull down the **Edit** menu and click **Map properties**. Type in your copyright information. Since we are using the processing directory as an intermediate step instead of copying our scenery files directly to an FS scenery directory, we want to type in the path to the processing directory we set up earlier. Click the Files tab. In the Output Directory box type the above path to your processing directory. The Output File Names determine both the source file name (.txt) and the scenery file

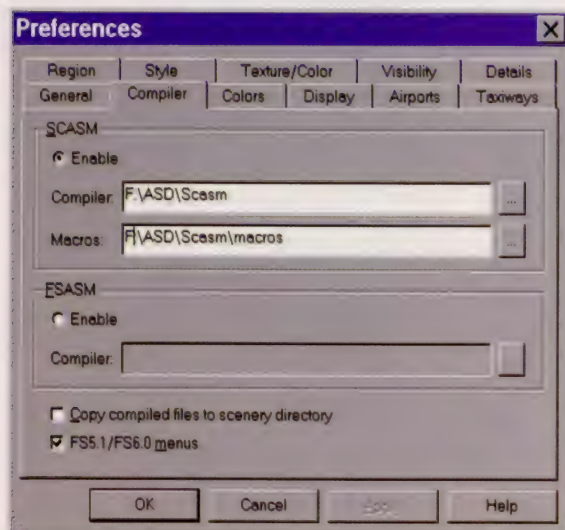
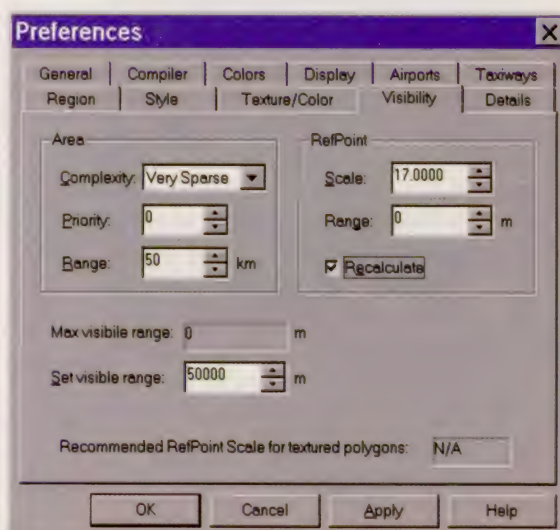
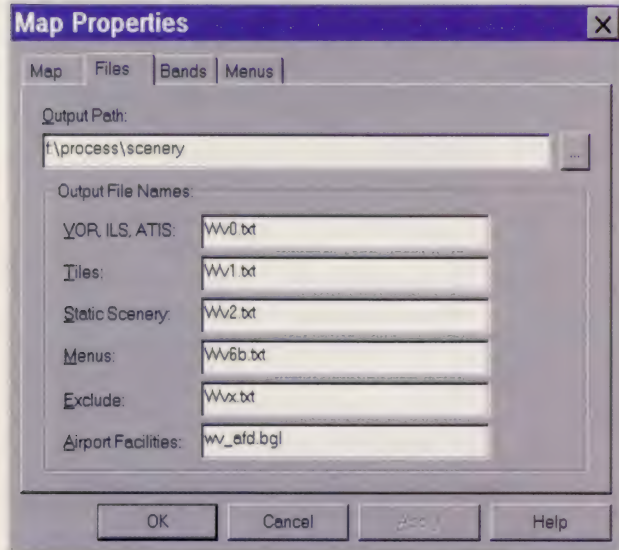


Figure 1
Check "FS5.1/FS6.0 menus" if you want your airports to be accessible from those menu versions

Figure 2
Make certain to click the Visibility tab



name (.bgl). Since DOS file order is often important, we want to use a



simple and logical naming convention. Because I always work with states, I use the state's two-letter abbreviation followed by a number, as above:

We will return to the Output File Names after we set up our static scenery banding. Banding is an important concept if your scenery project covers an area larger than about 2 degrees of latitude. Banding ensures that the latitude table used by the FS processor does not have to load the whole scenery in one bite, possibly

choking on it. Banding allows FS to digest it smaller bites, which will

optimize performance and frame rates. Static scenery bands should usually be less than two degrees of latitude. Look at your map and determine how many degrees it covers north to south. My West Virginia scenery covers approximately four degrees of latitude so I have set up my banding like those in Figure 4 and Figure 5 (below)

... and so on, four static scenery bands in all, each less than 2 degrees.

Now we will return to the Output File Names on the Files tab since we now know how many bands we'll need (ASD allows up to six) and what their file names are. Since our static scenery ends with wv5.bgl, our next file should be named wv6.txt. Obviously if you only have only two bands, the next file would be named wv4.txt. If you have six static bands, your next file would be named wv8.txt. By the way, the Output File Names boxes are mislabeled in ASD. The ATIS source file will

actually be created with the menu source file and not with the nav aids, as you will see later when we actually create our source files and compile them. You will also notice that I have named my menu/ATIS file wv6b.txt. Don't worry about it for now. It will become clear later when we create our batch files.

Since it is preferable that exclude files fall last in their directory, I always name them with the two-letter state abbreviation plus an "x." This will ensure that they fall last when the directory is sorted using a sorting utility. We are almost finished setting up ASD. Click the menus tab. Fill in the name of your scenery as you want it to appear in the FS5/FS6 **Go to Airport** menu. (Note: I have found this a convenient way for the end user to determine what version of your scenery they have. It is also handy for tech support when a user contacts you with a bug or problem. Refer them to the **Go to Airport** menu and have them note the version. Every time you put out a patch or update be sure to update this text box with the new version number and include the wv6.bgl in your zip file so they can overwrite the previous version in their scenery directory.) Fill in the appropriate information in the FS98 menu box and click **OK**. (See

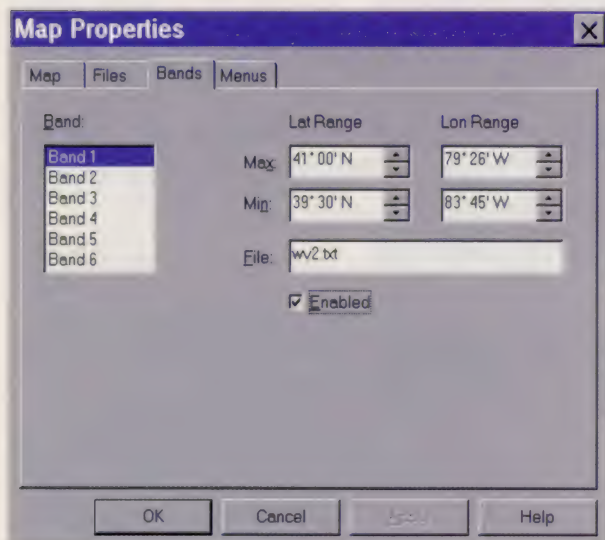
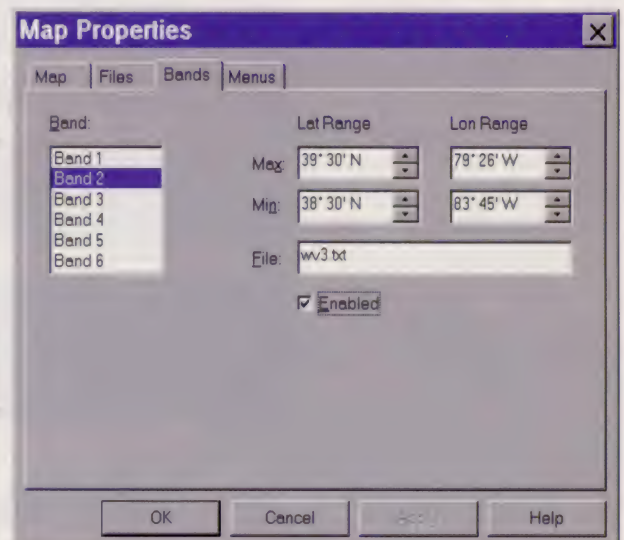


Figure 4

Figure 5



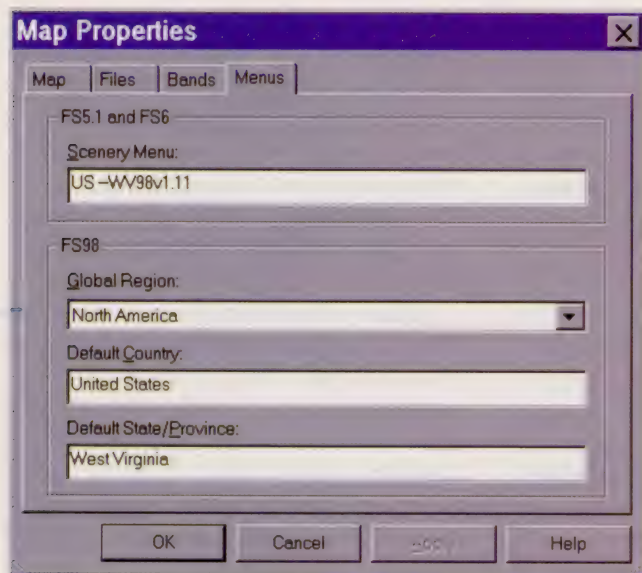


Figure 6
Make certain to click the Visibility tab

backup. You never know when something may go wrong and having a good backup has bailed me out more times than I can remember.

Compiling for the first time

Now that we have set everything up, we are ready for our first compilation. Pull down the **Select** menu and click **Select All Features**. Every region in your map should turn green. Pull down the **File** menu and choose **Create Scenery Files**. Put checkmarks beside the first four scenery types. Uncheck the **Airport Facilities Directory**. On top left of the dialog box, check **Banding** and make sure there are checks beside each band you have set up.

Now take a deep breath, click the **Compile** button, and let 'er rip.

It will take a couple of minutes for ASD to process things. First it will create the source files, then compile them. When the progress box disappears, and if you have set up your paths correctly, you should be able to find your source files (.txt) and scenery files (.bgl) in the process directory we set up earlier. Next we will set up the

scenery directory, write our batch file, execute it, and wrap this up for this installment.

Writing and using batch files

Now that we have created our source files and compiled them into the processing directory, we need to determine what further processing, if any, the files require before finally copying them a scenery directory where **Flight Simulator** can

illustration above.)

Now we have ASD set up and we are almost ready to test our setup and create and compile our files for the first time. However, before we do that we want to place one airport, runway, ILS, menu entry, and synthetic tile. This is so we have at least one of each of the different scenery types to compile. At this point, we are not concerned about accuracy, only with having some information for ASD to process. If you want to place an authentic airport, you may do so, but if you want to just place a quick dummy airport, you can do that too and delete it later. From the Toolbar, choose the Airport tool and place an airport. Name it "Dummy" or the name of your "real" airport. Right-click on the airport and choose **Diagram**. Click the runway tool from the Airport Toolbar and place a runway. Right click on the runway and choose properties. Click the menu tab, then click **OK**. Pull down the Insert tab and choose ILS. Put a

checkmark beside one of the runways. Click **OK**. Double-click on one of the resulting dots on the runway. Make sure to fill something in the ID field or it will cause an error at compile time. Click **OK**. Now close the Airport View and you should be back to Map View. Click the Tile Tool and place a tile under your airport. Now pull down the **File** menu and click **Save As**. Name your map (wv.scb in my example), and click **OK**. It is a good idea to save your map often, by the way, and save a copy, too, so you always have a recent

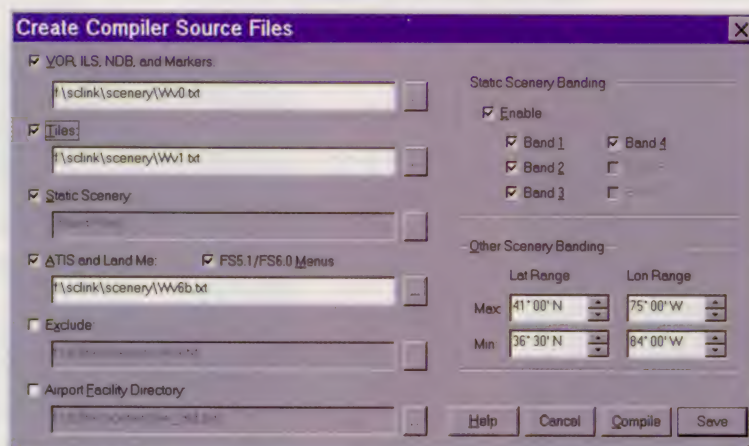


Figure 7
*Click the **Compile** button and let 'er rip.*



read them. This need will probably evolve as the project progresses so be prepared to edit your batch files accordingly along the way.

I should here mention that the following procedures may at first seem very complicated and, to some, unnecessary. Believe me, they are more complicated in the explaining than they are in the doing, so bear with me here. As far as unnecessary, maybe so, but I've found my system to be very useful, and time- and labor-saving in the fact that I usually have three or four major projects running at once. Feel free to develop whatever system works for you. This is what works for me.

First, we will create a scenery directory where we will ultimately place our scenery (.bgl) files. It is usually a good idea to put all your add-on sceneries, including the one you are building, in a directory *outside* of the Flight Simulator directory. This is essentially a precautionary measure in case you ever need to uninstall and reinstall **Flight Simulator**. If you install your add-on sceneries outside of the Flight Simulator directory, after you reinstall **Flight Simulator** it's simply a

matter of copying a backed-up world.vis file to the main scenery directory and you're back in business very quickly. No need to reinstall all the great scenery you have accumulated over time.

So, we will create a directory called "scenery" anywhere on your hard drive. In this case, the drive label is "I". Now under that directory create another directory called "wv" (using our example—you of course will name this according to your own needs). Under the "wv" directory you now create another directory called "scenery" (since **Flight Simulator** will not recognize a path that does not end in "scenery"). Thus, we have:

I:\scenery\wv\scenery

This is the ultimate destination of our scenery files. We will write a batch that will first process our files, then copy those files to the scenery directory.

We will create an easy shortcut to get to our processing directory command prompt. Click the Windows Start button, Settings, Task Bar & Start Menu. Find the MSDOS Prompt and make a copy of it. Right-click on the copy and rename it to "Scenery Process" or something similar. (I have always just called it "working.") Right-click on it again and choose **Properties**. Click the Program tab and in the "Working" box type in the path to the processing directory (i.e., f:\process\scenery). Click **OK**. Now drag the Scenery Process MSDOS Prompt to your desktop where you can easily reach it. If you are using Internet Explorer 4.0 or Windows98, you can drag the icon to your task bar, which is even more convenient. Now anytime you need to go to your

processing directory command line, just double-click the Scenery Process icon.

One example of further processing which may be desirable is a situation I encountered while creating West Virginia 98. ASD only allows one ATIS message per airport. Since I wanted to create a statewide AWOS system using ATIS frequencies, I had to write a SCASM source file, manually compile the source file, then link the resulting .bgl file with the ASD-created menu/ ATIS .bgl file. Remember the wv6b.txt file in my Map Properties? Here is the reason for that. When I compiled my hand-made AWOS file, I named it wv6a.bgl. Using sclink.exe (which we have previously copied into the processing directory), I now combine the wv6a.bgl and the wv6b.bgl into one new file called wv6.bgl by writing an .scl file using the recommended syntax for sclink.exe.

To do this, double-click on the Scenery process icon and you will be taken to a DOS window at the f:\process\scenery command line. At the command prompt, type:

```
edit wv6.scl [enter]
```

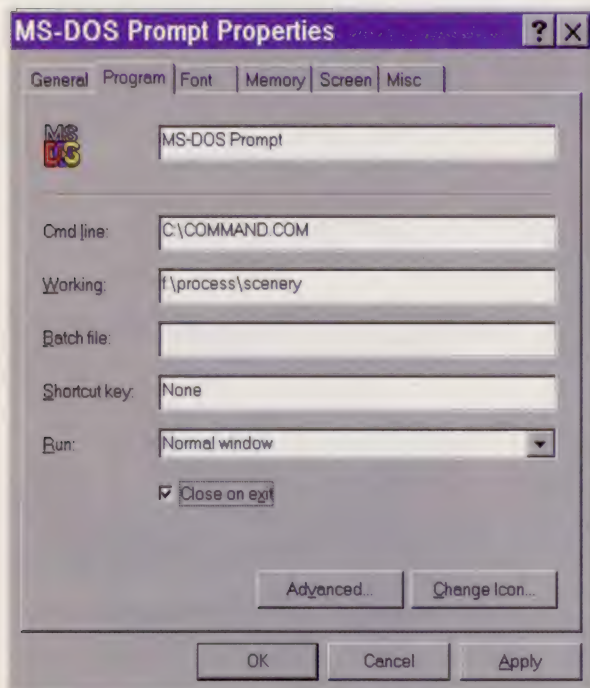
Then type:

```
wv6.bgl wv6a.bgl wv6b.bgl
```

Save and Exit. You have just created a file that will link the wv6a.bgl with the wv6b.bgl into one file called wv6.bgl. We will call this file later in our batch file. We also want an automated way to compile the wv6a.txt source file so we do not have to manually type all that command line stuff to recompile it every time we edit the source file.

Ok, now we are ready to create our batch file. The first thing we want the batch file to do is compile the wv6a.txt source file.

At the f:\process\scenery command prompt, type:



Scenery Design Corner

edit compwv.bat [enter];you can name this anything you want *.bat

Then type:

```
scasm wv6a.txt wv6a.bgl ;this
compiles the source file into a
scenery file
sclink wv6.scl ;this links
wv6a.bgl and wv6b.bgl into
wv6.bgl
copy wv0.bgl
I:\scenery\wv\scenery
copy wv1.bgl
I:\scenery\wv\scenery
copy wv2.bgl
I:\scenery\wv\scenery
copy wv3.bgl
I:\scenery\wv\scenery
copy wv4.bgl
I:\scenery\wv\scenery
copy wv5.bgl
I:\scenery\wv\scenery
copy wv6.bgl
I:\scenery\wv\scenery
```

Save and Exit. If you wish you can make a copy of the Scenery Process MSDOS Prompt and add \compwv.bat to the end of the "Working" line to have an easy way to execute this batch file. Rename this "compwv" or something similar and drag it to your desktop (or your taskbar if you have IE4 or Windows98). Then all you have to do is double-click on the "compwv" icon to execute the batch file. If you prefer you can just manually type

compwv [enter]

At the f:\process\scenery command prompt. You will execute this batch file after making any changes to any of the files, either in the process directory or from ASD. Now execute the batch file to process and copy the scenery files to the scenery directory we created earlier. Next, open **Flight Simulator**, pull down the **World** menu, and choose **Scenery Library**. Click **OK** in the

warning box (we *know* what we're doing!), and click **Files**. Click **Add**. Type in the path to the scenery directory:

```
i:\scenery\wv\scenery\*.bgl
```

Give a logical name to the scenery area. You might name it "Working" or whatever you want. Make it "Local." Give it a layer number. Click the Active button. Click **OK** until you are out of Scenery Library. Pull down the **World** menu and click **Go To . . . Airport**. Click the **FS6.0 and before** button and look for the listing you specified in Map Properties under the Menu tab. You should see your dummy airport listed there. Double-click on the airport listing and you should be taken to your dummy airport in Flight Simulator. There will not be much to see at this point but the runway we placed. However, go ahead and press the **;** (semicolon) key and save a flight here. Name it "working" and make it the default flight. You can change this "Working" flight throughout the creation process to have an easy and convenient way to return to your working area.

That completes the setup procedure. Whew! A lot of work, eh? Well, you only have to do it once and doing it now will save much time and effort later as we proceed through this major scenery project. As we move along the benefits to all this setting up will become self-evident.

In the next issue we will be "Getting Off the Ground." We will place all our airports, synthetic tiles, Nav aids—all the nuts and bolts—and prepare for beta 1 testing.

See ya then . . .

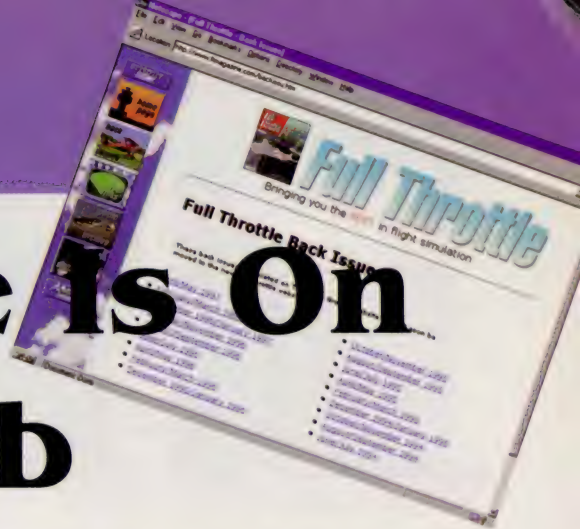
References

Pascal Meziat	
Web	simflight.com/airport.htm
E-mail	pascal@simflight.cin
Author of Airport 2.x	
Rafael Sanchez	
Web	www.geocities.com/CapeCanaveral/Lab/3073
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Author of Visual Object Designer	
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And while here, be sure to sneak peeks into the contents of the next issue. The extensive Links page covers almost every aspect of flying, from aviation to simulation.

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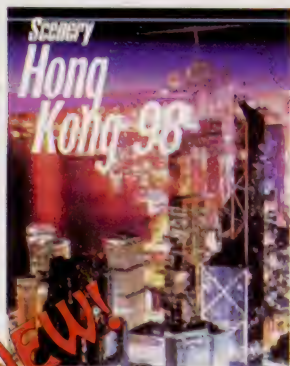
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FSWOW Library #1 At the Airport

By Brian Howard

Many flight simulator scenery design tools have appeared that allow anyone to create or customize scenery files by pointing and clicking. No longer is it necessary to code PerspectiveCalls and RefPoints by hand. This is great for all users who want to make their mark in FS, but don't have the time or interest in learning a programming language. *FSWOW (World Object Wizard)* employs a very easy-to-learn interface to place a plethora of 3-D objects into your favorite sceneries.

FSWOW offers 3-D clip-art for Microsoft's Flight Simulator. The beauty of this program lies in the diversity of elements and the ease of use. **FSWOW—At the Airport** contains most of the features you'll find at large and small airports: transmitters, trucks, tugs, towers, signs, radar domes and dishes, helicopters, hangars, planes and blimps, buildings and blastwalls.

But this list only hints at the elements provided. For example, there are over 100 variations of airline food service trucks available. You may fly the flags of 22 nations. The Boeing 747 has hundreds of variations, including international, domestic and generic paint schemes. You can create custom signs in many styles, saying whatever you wish. All together, you control 189 objects, and each of these has between two and 73 variations.

The user-friendly interface and this enormous database handles very smoothly. It is very simple to place 3-D scenery objects. One only needs to select an object and choose its location.

FSWOW operates two program windows: the Object Catalog and the Construction List Editor. Browse the Object Catalog for the element you wish to place, click **Inventory** to select the specifics (such as paint scheme and level of details), and click the **Copy to the Clipboard** button. Then in the Construction Editor, click the Paste toolbar button, click the Location button to determine where it will be placed, and click the Place button to create a scenery file. After these few mouse clicks, you are ready to launch FS and check out the new scenery element.

As you become more comfortable with the program, you can really begin to take advantage of its power. You'll have to start using the keyboard for a few simple commands, but the tutorials lead you through this process very well. Once mastered, you can place multiple objects with a single construction entry (such as a row of construction barricades), place objects upon objects (like a sign upon a hangar) and use object/silhouette combinations to improve frame rate and lower the

demands being made upon your system.

For example, if you have a particularly detailed element, you may assign that this object be viewed in full detail only from within two-tenths of a mile. When the viewer is farther than two-tenths of a mile from the object, having it displayed as a silhouette (without details) will lessen the demands the scenery makes on your system. Each plane (and most other elements) is provided in a spectrum of details, so that you have full control over how large and system-intensive your objects are.

FSWOW is easy for anyone to learn within thirty minutes. And it's powerful enough for designers to visually place well-rendered objects throughout their sceneries. Everyone who is interested in customizing FS's default sceneries or in quickly and easily adding diverse elements to original sceneries will find this to be both a helpful tool and an entertaining diversion.

FSWOW

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~tekmate

This hanger scene is composed of several elements. The exterior, the interior jets, the sign over the door and the

construction barricades were individually specified. I also dictated the colors for most of these objects, so I was able to color coordinate the jets and the hangar



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a hangar of five civilian aircraft, ranging from the introductory Cessna 172 Skyhawk to the dual-throttled thrill of a Citation



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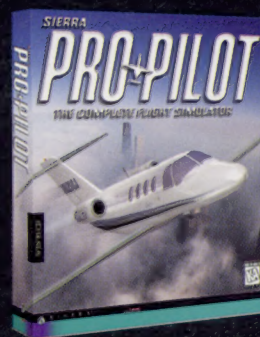
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